S. HRG. 100-469

MANAGEMENT AND FINANCIAL DEFICIENCIES IN FEDERAL MINE RECLAMATION PROGRAMS

HEARING

BEFORE THE

SUBCOMMITTEE ON GOVERNMENT EFFICIENCY, FEDERALISM, AND THE DISTRICT OF COLUMBIA

OF THE

COMMITTEE ON GOVERNMENTAL AFFAIRS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

OCTOBER 23, 1987

Printed for the use of the Committee on Governmental Affairs

U.S. GOVERNMENT PRINTING OFFICE

81-309 WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S401-27

COMMITTEE ON GOVERNMENTAL AFFAIRS

JOHN GLENN, Ohio, *Chairman*

LAWTON CHILES, Florida
SAM NUNN, Georgia
CARL LEVIN, Michigan
JIM SASSER, Tennessee
DAVID PRYOR, Arkansas
GEORGE J. MITCHELL, Maine
JEFF BINGAMAN, New Mexico

WILLIAM V. ROTH, JR., Delaware
TED STEVENS, Alaska
WILLIAM S. COHEN, Maine
WARREN B. RUDMAN, New Hampshire
JOHN HEINZ, Pennsylvania
PAUL S. TRIBLE, JR., Virginia

LEONARD WEISS, *Staff Director*
JO ANNE BARNHART, *Minority Staff Director*
MICHAL SUE PROSSER, *Chief Clerk*

SUBCOMMITTEE ON GOVERNMENT EFFICIENCY, FEDERALISM, AND THE DISTRICT OF COLUMBIA

JIM SASSER, Tennessee, *Chairman*

CARL LEVIN, Michigan
GEORGE J. MITCHELL, Maine

JOHN HEINZ, Pennsylvania
WILLIAM S. COHEN, Maine

JOHN CALLAHAN, *Staff Director*
CAROLYN JOURDAN, *Chief Counsel*
ANDREW MCELWAINE, *Minority Staff Director*
DENISE BOTSARIS, *Chief Clerk*

CONTENTS

Opening statements: Page
Senator Sasser 1
Senator Heinz 29

WITNESSES

FRIDAY, OCTOBER 23, 1987

Jed Christensen, Director, Office of Surface Mining Reclamation and Enforcement, U.S. Department of the Interior, Washington, DC, accompanied by Robert Boldt, Deputy Director, Office of Surface Mining, and James Workman, Deputy, Office of Surface Mining 3
James S. Lyon, Environmental Policy Institute; Barbara Levi, Tennessee citizen witness, member of Save our Cumberland Mountains [SOCM]; and Tom Galloway, private attorney 16
L.H. Burnett, Tennessee Soil Conservation Service; Richard Bielicki, Pennsylvania Director, Bureau of Abandoned Mine Reclamation, Department of Environmental Resources; and Michael L. Kastl, Oklahoma AML Program Director 26
Roger Bollinger, Program Manager, Land Reclamation Small Coal Operator Assistance Program, Tennessee Valley Authority, accompanied by Jack Muncy, Project Leader, Abandoned Noncoal Mineral Lands Reclamation 39

ALPHABETICAL LIST OF WITNESSES

Bielicki, Richard:
Testimony 26
Prepared statement 96
Boldt, Robert: Testimony 3
Bollinger, Roger:
Testimony 39
Prepared statement with an attachment 106
Responses to written questions submitted by Senator Sasser 111
Burnett, L.H.:
Testimony 26
Prepared statement 88
Christensen, Jed:
Testimony 3
Prepared statement 43
Responses to written questions submitted by Senator Sasser 50
Galloway, L. Thomas:
Testimony 16
Prepared statement 82
Kastl, Michael L.:
Testimony 26
Prepared statement 101
Levi, Barbara:
Testimony 16
Prepared statement 76
Lyon, James S.:
Testimony 16
Prepared statement with an attachment 63
Muncy, Jack: Testimony 39
Workman, James: Testimony 3

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

Page

Prepared statements of witnesses in order of appearance 43
Charts submitted by Senator Sasser 115
"Interior Unveils Plan to Reclaim Abandoned Coal Mines in National Parks in PA., Tenn., Ky., and W. Va.," news release, May 29, 1987, Office of Surface Mining Reclamation and Enforcement, Department of the Interior .. 118
Letters from:
Donald J. Sniezek, Mining Engineer, Department of the Treasury, to Dick Juntunen, Chief, Abandoned Mine Reclamation, Department of State Lands, Helena, MT, October 6, 1987 120
Jed Christensen, Director, Office of Surface Mining, Reclamation and Enforcement, Department of the Interior, January 29, 1987 121
Acting Director, Office of Surface Mining, Reclamation and Enforcement, Department of the Interior, April 14, 1987 125
Photographs submitted by Barbara Levi 129
"The Abandoned Mine Land Program," May 1987, Association of Abandoned Mine Land Programs 136
"Mine Office's Booklet Brings Lawmaker's Ire to Surface," by Bill McAllister, from the Washington Post, October 14, 1987 165
"Surface Coal Mining Reclamation: 10 Years of Progress, 1977–87," a report on the protection of the Nation's land and water resources under title V of the Surface Mining Control and Reclamation Act of 1977, Office of Surface Mining Reclamation and Enforcement, Department of the Interior, August 3, 1987 166

MANAGEMENT AND FINANCIAL DEFICIENCIES IN FEDERAL MINE RECLAMATION PROGRAMS

FRIDAY, OCTOBER 23, 1987

U.S. SENATE,
SUBCOMMITTEE ON GOVERNMENT EFFICIENCY,
FEDERALISM, AND THE DISTRICT OF COLUMBIA,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:10 a.m., in room SD-342, Dirksen Senate Office Building, Hon. James R. Sasser (Chairman of the Subcommittee) presiding.

Present: Senators Sasser and Heinz.

OPENING STATEMENT OF SENATOR SASSER

Senator SASSER. The Subcommittee will come to order.

I want to welcome before the Subcommittee this morning Mr. Jed Christensen, the Director of OSM and say we are pleased to have you here with us this morning Mr. Christensen, and your associates. I have an opening statement, and I assume we will be joined by Senator Heinz later.

Today the Subcommittee on Government Efficiency is holding an oversight hearing on the Abandoned Mine Land Reclamation programs administered by the Office of Surface Mining. The Abandoned Mine Land Reclamation Program has been in existence now for some 10 years and it is appropriate that we review the accomplishments and the shortcomings of this program, as well as the problems which lie ahead as we seek to reclaim millions of acres of mine land still unreclaimed in this country.

I have a special interest in mine reclamation. My native State of Tennessee currently has some 46,000 acres of abandoned mine land, but to date less than 500 acres at 41 mine sites have been reclaimed. That is just slightly over 1 percent of the abandoned mine land that has been reclaimed.

Tennessee has contributed some $17.5 million to the Abandoned Mine Land Program, yet to date only about $13 million has been spent in the State on reclamation projects. So Tennessee clearly needs more Federal funds for reclamation projects, yet these funds have not been forthcoming.

But what has occurred in Tennessee is not unusual. Tennessee does not stand alone. By the end of this year there will be a $400 million surplus in the Abandoned Mine Land Fund. That is money which could be spent by the State on a variety of reclamation projects, and as one can note from the chart here to my immediate

left,[1] this surplus has been a significant feature of the Abandoned Mine Land Fund Program for some time. In other words, we have been seeing a balance ranging from $500 million downward and stabilizing at $400 million now since 1983.

It is ironic to me that we would have such a surplus of Abandoned Mine Land Funds in the face of such tremendous reclamation problems. Indeed, many States are clearly being shortchanged as a result of this misguided program policy of having such a large surplus of funds. If we are not going to use the funds we wonder why we are collecting them.

Consider if you will some of the following figures.[2] According to our staff's review of Office of Surface Mining documents, the State of Kentucky has contributed some $317 million into the surface mining fund, but to date only $177 million has come back to Kentucky for reclamation projects.

Wyoming has contributed some $337 million to the fund but to date has received only $128 million in return for reclamation projects. And then at the other end of the spectrum, the State of Iowa has contributed $1.6 million to the fund, yet it has received back $16.8 million, about seven times more than it has contributed. In the same vein, the State of Michigan has received $850,000 for reclamation of three mine sites though it is hardly a heavy coal-producing State at all.

So it hardly seems to me that the Office of Surface Mining over the years has directed its attention to the areas where reclamation is most needed. Between now and 1992 some $3 billion will be paid into the mine reclamation fund. At the rate at which the Office of Surface Mining is building up a surplus in the fund, we might well project an unexpended balance of three-quarters of a billion dollars in the fund by 1992.

So, clearly, more money needs to flow out of the Fund to the States where the surface mining land needs to be reclaimed. There needs to be more money down where the rubber meets the road. The Office of Surface Mining must be more aggressive within the Administration in pushing for expenditure of these funds which have been collected from mine owners already and are being held in the trust fund. They must be more aggressive in working with those in the Congress who will take up the fight and get these funds out to the field where they are needed.

It makes little sense to build up these fiscal surpluses when the environmental and health hazards of unreclaimed mine lands continues to fester in the major coal-producing States of this nation. Our coal-producing States have supplied a great deal of our energy needs over the years and will continue to do so and they have a rightful claim to these funds which are designated for mine reclamation.

But the problem here is not one of dollars and cents. It is not simply an accounting or management problem. It is a problem that touches the lives of thousands of individuals who live near these abandoned mine sites and hundreds of communities that are around them daily.

---

[1] See Chart No. 1 on p. 115.
[2] See Chart No. 2 on p. 116.

Just let me give some examples of some testimony that will be offered here today.[3] This summer an 8-year-old boy drowned while playing in an abandoned clay pit near Hazelton, Pennsylvania. In Campbell County, Tennessee, at the Ollis Creek Strip Mine site, three people in automobiles and on a motorcycle were killed when their vehicles fell over a high-wall site.

In Soddy Daisy, Tennessee, an infant and a young child were killed when they fell into a pool of deep water in an abandoned mine site. In the Kenvir community of Harlan County, Kentucky, the water is so bad that residents cannot have a community water system. There in Harlan County the citizens have to spend enormous sums of money for pumps used to maintain alternative water systems. Water quality is a serious problem in Kenvir, Kentucky, but the Office of Surface Mining has not authorized funds for water clean-up in that hard pressed community.

For the past 2 years the Miles Ratliff family of Grundy County, Virginia, has had their house threatened by an advancing landslide. They have since evacuated their home while the Office of Surface Mining is still investigating whether this problem is indeed—to use their words—mine related.

Now, I submit that this is a real tragedy of the current administration of the Abandoned Mine Land Program. Human and community needs are going begging while the bank account of the Abandoned Mine Land Fund goes through the roof. This shortsighted mine reclamation policy, it seems to me, should not continue, and I hope that all of the witnesses coming before this Subcommittee today will offer their insights and their suggestions as to how this policy came about and the steps we can take to ensure that these reclamation funds are promptly sent to areas of greatest individual and community need.

We will now hear from Mr. Jed Christensen—as I said earlier—the Director of the Office of Surface Mining, and, Mr. Christensen, if you would be kind enough to introduce your colleagues this morning for the record.

TESTIMONY OF JED CHRISTENSEN, DIRECTOR, OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, U.S. DEPARTMENT OF THE INTERIOR, WASHINGTON, D.C., ACCOMPANIED BY ROBERT BOLDT, DEPUTY DIRECTOR, OFFICE OF SURFACE MINING, AND JAMES WORKMAN, DEPUTY, OFFICE OF SURFACE MINING

Mr. CHRISTENSEN. Thank you, Mr. Chairman. It is a pleasure to be here and discuss the Abandoned Mine Land Fund with you today. On my left is Deputy Director Bob Boldt from the Office of Surface Mining and on my right is Jim Workman, the second Deputy in charge of technical affairs.

Also, Mr. Chairman, if you would not mind, I would like to submit my full testimony for the record and simply summarize very quickly my comments.[4]

---

[3] See Chart No. 3 on p. 117.
[4] See p. 43.

Senator SASSER. That is fine.

Mr. CHRISTENSEN. Thank you. Mr. Chairman, I think this is an appropriate time to be discussing the Abandoned Mine Land program, particularly because this is the 10th anniversary of the surface mining law. Congress, as we know, created the surface mining law not just to make sure land is reclaimed as part of current coal mining, but also to deal with damaging after-effects of mining done before the surface mining standards went into force. That is what the AML program is all about.

Today I would like to testify on the status and the achievements of the program and specifically address several parts of it—the status of the fund, fee collection, Federal reclamation work that we do, the RAMP program, the water supply system policy, and touch briefly on emergencies.

First, Mr. Chairman, I would like to suggest that we are real pleased to introduce for the record and hand to you a copy of a report that was done by the Association of Abandoned Mine Land States that very carefully analyzes State-by-State the kind of work and achievements that have been done in this program for the last 10 years.[5] This report basically shows and describes program expenditures and accomplishments and shows that nearly 66,000 acres have been reclaimed nationwide on more than 6,100 abandoned mine sites.

More than 7,600 abandoned mine openings have been closed, filled and sealed. I think we have to recognize that this is not just a statistic. For every open shaft that was sealed, that is one potential tragedy that will never occur, as you have pointed out so well in your presentation and comments.

Last week there was a little girl in Texas that fell down a well. The whole country was watching and sighed with relief when she was finally freed after 60 hours of work. As we know, the AML Program covers mines, not wells, but the ordeal of this little girl and her family is a dramatic reminder of how valuable the AML Program is because so many potential similar tragedies have been prevented.

In addition, the booklet points out that 33,200 acres that contain coal mine waste, high walls, impoundments, abandoned roads and old tipples have been reclaimed. Also, 9,000 acres of mine refuse—which included culm banks, gob piles, slurry ponds—have been cleaned up; 450 landslides have been cleared or stabilized, and nearly 240 abandoned mine fires have been extinguished.

I think it is important to point out as we discuss the AML Fund today, how closely it is linked to the idea of primacy. Congress made sure that only primacy States could qualify for AML grants. Section 405[c] of the law says, "the Secretary of the Interior shall not approve, fund or continue to fund a State abandoned mine reclamation program unless that State has an approved State regulatory program."

Something that we have recently started is a program to take care of some reclamation that needs to be done in several of America's national parks. We have entered into a cooperative agreement

[5] See p. 136.

with the National Park Service that will, over the next 5 years, have OSM spending $1 million to reclaim abandoned mines—coal mines—in four States—Pennsylvania, West Virginia, Tennessee and Kentucky. The particular mining area we are talking about in Tennessee is the Big South Fork National River Area. We have a press release that we would be glad to submit for the record [6] if it is of interest to the Committee.

Senator SASSER. It will be included in the record.

Mr. CHRISTENSEN. Thank you.

First let me just quickly relay some statistics on the Abandoned Mine Land Fund and the status of that. The first AML grants to States were awarded in 1981. At the close of fiscal year 1982, 15 States had achieved primacy and had started getting AML grants. Today there are 23 primacy States that are eligible for grants to fund their AML reclamation programs.

Through February 1987 there has been collected $1.87 billion in AML fees. We project that about $3 billion in AML fees will have been collected by 1992, which is the termination of the current program.

You mentioned briefly the amount of the Fund balance. You are entirely correct. There is approximately $210 to $220 million that comes into the Fund each year. However, for the last several years Congress has only appropriated $150 to $170 million for State grants, which is obviously going to continue to build up the balance until that money can be appropriated and spent.

Let me quickly discuss our fee collection and audit effort. This is a very important part of our program because the Fund balance obviously depends on receiving quarterly AML fee payments from coal mine operators. We have carefully monitored collection rates over the past 10 years and have determined that the delinquency rate is below 5 percent, mainly due to compliance by most of the operators who are in the coal mining industry, but also because of our aggressive audits and follow-up on delinquent cases.

Also, we have been very careful to ensure that AML payments have been made in the last 2 years, by doubling the size of the audit staff, and significantly upgrading their professionalism and training. We have established priorities for auditing, and we use many more data sources than we used to ensure that people are actually paying what is due.

Also in the last three years through litigation, the Office of the Solicitor has recovered an estimated $13 to $14 million in what were determined to be delinquent AML fees.

As you know, Mr. Chairman, the allocations for AML reclamation grants are basically divided in two—50 percent of the Fund is returned automatically to the States that have primacy; the other 50 percent of the Fund is put into the Secretary's discretionary share. That money is basically divided into two parts. It is allocated by a formula that is based on an inventory of Abandoned Mine Land sites as well as historic coal production in each State.

The States have had the opportunity in the last several years to update that inventory. They have aggressively done so and we have

---

[6] See p. 118.

made updates for the State of Tennessee. Now that we have that information, we base our allocation formulas on the inventory information as well as the historic coal production information. This formula allows States to better predict what they are going to receive during the next 5 years of the program.

We have had two initiatives which I think are important to discuss quickly. One is, we have recommended to the Congress a minimum level AML program for certain States to ensure that they continue to have viable AML programs. Congress is presently reviewing that proposal and we are hoping we get an answer so that we can implement it in several States during the 1988 fiscal year.

The second has to do with setting aside 10 percent of a State's share monies for future uses. Congress authorized this proposal and the President signed the bill into law on May 7, 1987.

We also have what is known as a Federal AML Reclamation Program. Initially, the program was run through Federal reclamation projects because the States did not have primacy. So far, that program has used about $106 million to reclaim 417 AML sites in 31 States and on Tribal lands. Today the direct Federal involvement in these programs has substantially decreased because most States have primacy and the bulk of the Priority 1 and 2 problems in non-primacy States and on Indian lands has been done. The Indian tribes also now have access to their AML funds, which was accomplished in a recent Congressional action.

We are continuing to encourage States that have primacy to take on the emergency program. Emergencies are now handled by the OSM to stabilize the emergency very quickly and then the States through their regular program grants finish these problem areas, if necessary. Several States already have taken over the emergency program, and they are listed in my written testimony.

Another part of the program which has raised some controversy recently has to do with the Rural Abandoned Mine Program. As you know, Mr. Chairman, since 1982 we have consistently held that no new RAMP projects should be funded through the Agriculture Department's Soil Conservation Service. We feel these projects are much better funded through the State programs so that way the States can determine where the need for the work is and contract with whomever they please to do this work.

A policy that we need to discuss quickly has to do with water supply systems, and I know you have a particular interest in this part of the program. In writing the surface mining law, Congress made it very clear that protecting, repairing, replacing, building or enhancing public facilities is a Priority 5 concern, and that includes water supply systems.

Congress recognized, also, that there are some cases where people's health or safety could be threatened because of damage to their water supply system stemming from abandoned mine land problems. In recognizing that need to address impacts on water quality from past coal mining, we follow the foregoing policy in the Office of Surface Mining. To elevate a water supply system project from a Priority 5 to a Priority 2 there are 2 conditions that must be met: one, the water supply system must be significantly affected by past coal mining practices that occurred prior to 1977.

The second condition is that the condition of the damaged water supply system must pose an actual threat to the health and safety of the general public. When those conditions are established and met, a State may request funds through their regular program for an alternative water supply. Obviously, we review these requests very carefully to make sure that we are following the law.

There is another very troublesome thing that has occurred recently that has to do with the potential tax liability of individuals who received AML funds for work on their private lands. Recently the IRS in Ohio made a ruling that raised a tremendous concern, indicating that people receiving funds would be liable personally for the increased value benefits that occurred on their property.

Legislation has been introduced, which we support, to make sure that the AML program does not degenerate due to tax liabilities. There have been some serious problems in several States where landowners have basically told the State that they cannot come on their properties to do this work if there is a concern about a tax liability.

I recently received a copy of a letter from the State of Montana which indicated that they had received a letter from the IRS asking them for a list of all of the AML projects that have been done in Montana, I assume with the idea that perhaps these will become taxable, and I would like to submit a copy of that letter for the record, Mr. Chairman.[7]

Senator SASSER. It will be included in the record.

Mr. CHRISTENSEN. There is just one more item, Mr. Chairman, I would like to discuss this morning. It has to do with the idea of remining, reclaiming AML sites without using AML funds. There is a great potential, I think, to have coal companies go in and reclaim mined land if they are given adequate incentives. Recently Congress passed an amendment to the Clean Water Act which helps in this area.

OSM did a study last year to look at what we can do through the regulations and with the current law to allow more remining. We issued several letters to interested parties telling them that we think they can already do certain things, and I would like to submit copies of those letters for the record for your information.[8]

Senator SASSER. They will be included in the record.

Mr. CHRISTENSEN. Thank you, Mr. Chairman.

We are also going to propose to the Congress several amendments to the law which we think will be helpful in providing more incentives for reclamation through remining to stretch those funds as far as we can.

Mr. Chairman, to conclude I would like to say there has been significant progress over the last 10 years in America's program for reclaiming abandoned coal mine lands. We are dedicated to continuing and extending that valuable work in the years that are left in the program.

That completes my prepared testimony, Mr. Chairman.

Senator SASSER. All right. Thank you very much, Mr. Christensen.

---

[7] See p. 120.
[8] See p. 121, 125.

Now, this booklet here that you have provided for the record entitled "The Abandoned Mine Land Program: 1977 through 1987," [9] does this supersede the original booklet that was issued by the Office of Surface Mining?

Mr. CHRISTENSEN. Mr. Chairman, the first document you showed—the brown covered document—deals strictly with the Abandoned Mine Land Title IV Program. The color photograph brochure deals strictly with the Title V program, or the regulatory portion.[10]

Senator SASSER. Are you still publishing this book here?

Mr. CHRISTENSEN. We have published—yes, we are.

Senator SASSER. Is this the book that was criticized for costing $10 per copy, Mr. Christensen? Is this the same booklet?

Mr. CHRISTENSEN. That indeed is the booklet and we have written to the Congress and explained to them that that was not indeed the true cost of that product.

Senator SASSER. So if the Washington Post reported that this booklet costs $10 a copy, then Mr. Bill McAlister of the Post was incorrect in that story?

Mr. CHRISTENSEN. That is correct, Mr. Chairman.

Senator SASSER. Do you know where he might have gotten that information?

Mr. CHRISTENSEN. Probably from us is what I am afraid of.

Senator SASSER. In other words, you think OSM might have incorrectly advised Mr. McAlister as to the cost of it?

Mr. CHRISTENSEN. Actually, we did not provide that information to them. I do not know exactly where they got that. I think they just simply found out what the total cost was for the first printing, divided that into the number printed and came up with the $10 figure. However, we had intentions all along to print more copies and, obviously, the more you print the less it costs.

Senator SASSER. Well, I must say, it is a very elaborate brochure.

Now, you have indicated in your opening statement that there is a surplus, as I understand it, in the Fund now of $400 million; is that correct?

Mr. CHRISTENSEN. That is correct, Mr. Chairman.

Senator SASSER. And this money could be used to reclaim abandoned mine sites, sites that very often pose a risk to safety and a risk to health to those who live around these sites; isn't that also a correct statement?

Mr. CHRISTENSEN. Mr. Chairman, that is correct. And I think it needs to be understood that that money is there in the Fund until expended. It is just a matter of Congress appropriating the funds so that we can expend it.

Senator SASSER. Well, now, Mr. Christensen, you take the position that it is a question of Congress appropriating the funds.

Mr. CHRISTENSEN. Exactly.

Senator SASSER. Now, isn't it true that the Office of Surface Mining has been coming to the Congress and telling us you do not need any additional funds? In other words, you are the one who has come to the Congress and said, we need $170 million worth of

[9] See p. 136.
[10] See p. 166.

funds and the Congress goes along with your recommendation; isn't that correct?

Mr. CHRISTENSEN. It is kind of like that, Mr. Chairman. We have basically determined how much the States can actually obligate each year, how much they can use to do this work. Then we make a request in the President's budget and the money is appropriated by Congress at whatever level they feel appropriate.

Senator SASSER. Well, so in the final analysis, it is the Office of Surface Mining that really makes a recommendation to Congress as to the amount of funds that should be appropriated out of the Trust Fund to be used to reclaim these abandoned mine sites. So to come here and tell this Committee that it is really the Congress who controls these appropriations is begging the question to a great extent.

In other words, the Congress is guided by the recommendations of OSM as to how much money should be appropriated. For example, in 1987 I note that OSM requested $150 million from the Congress; isn't that correct?

Mr. CHRISTENSEN. That is correct.

Senator SASSER. And Congress actually appropriated $160 million. So Congress appropriated $160 million, or $10 million more than was actually requested.

Mr. CHRISTENSEN. That is true.

Senator SASSER. All right. I just want to get the record clear here that the fact that more money is not being appropriated is not the fault of Congress. Congress is following the recommendations of OSM, in fact appropriating more funds than OSM requested.

On the same subject, I note that year after year OSM comes up here to the Congress and says, we do not need to put more money into reclamation. This year you, Mr. Christensen, as I understand it, came before the Senate Appropriations Committee and suggested that we cut back on reclamation program grants. You maintained that such decreased levels, "will provide adequate resources to meet State reclamation needs."

Now, my question to you is how can you make that statement when we know that there are literally hundreds of thousands of acres of unreclaimed land all across this country crying out for reclamation and you have got $400 million there in the kitty. Why don't you come forward and ask for these funds and let's get on with the reclamation?

Mr. CHRISTENSEN. I think, Mr. Chairman, there is some explanation of that. If we look at the way the program was initially set up, it took the States 3 to 5 years to actually get primacy so they could request these funds. Once they had a program in place, it took a while administratively to set themselves up. It took a while to actually design the projects. Now they are asking for construction money to do them.

I think the States are doing better in expending the funds that Congress has appropriated to them. However, if we look at the history of the actual obligation rate by the States, they have not spent all of the money that has been appropriated by the Congress so far. Hopefully they will be able to build their programs up and be able to spend more, but basically the case is, they have not been able to keep up with what has been appropriated.

Senator SASSER. Well, you have got a great number of States that have an obligation rate average of about 85 percent.

Mr. CHRISTENSEN. Yes.

Senator SASSER. We have examined that.

Mr. CHRISTENSEN. And that is a very good rate.

Senator SASSER. And that is a very good rate at which to obligate those funds and expend them, is it not?

Mr. CHRISTENSEN. That is a pretty good rate for some of those that are doing that.

Senator SASSER. And if they are expending funds or obligating them at the rate of 85 percent, it appears to me that they have a capacity to assimilate more funds than they are getting.

Mr. CHRISTENSEN. Well what it shows to me, Mr. Chairman, is that they have stabilized their program and they have an even-keel program that year-to-year, based on that amount of money, can continue to do AML work.

Senator SASSER. What I fear, Mr. Christensen, is that the Office of Surface Mining is engaging in the same game that a number of other agencies are in this Administration. That is an effort to keep very substantial amounts of money in these trust funds unobligated so that the budget deficit figures will look better. And I think OSM in my view is playing this same game of budget gamesmanship that we see being played with the airport trust fund and other trust funds that the Executive Branch has control of.

Now, the perplexing thing and disturbing thing to me is that we have communities all across this country, and certainly communities in my native State of Tennessee in which citizens are forced to endure poor water quality as a result of acid runoff from these unreclaimed mine lands; they are forced to endure unsafe conditions as a result of these funds that have been collected for the purpose of reclaiming these abandoned mine land sites not being used.

What do you have to say to that statement?

Mr. CHRISTENSEN. Mr. Chairman, I think it is important to recognize that as these funds build up in the Fund, as you call it, ultimately they will be expended. Even though the program itself will quit collecting monies in 1992, we assume that it will be 3 or 4 years past that point before those funds are all expended.

The only reason that that money would not be given out to the States is if Congress actually changes the surface mining law and decides to appropriate those funds elsewhere.

Senator SASSER. So we are going to continue to collect those funds and build up surpluses. What did you say? By 1992 at the current rate of expenditure we would have a surplus of three-quarters of a billion dollars; was that your testimony?

Mr. CHRISTENSEN. Approximately that, yes.

Senator SASSER. And by 1992 we will have collected what? $3 billion?

Mr. CHRISTENSEN. We are estimating it will be around $3 billion that will be collected over the 15-year period of the program.

Senator SASSER. All right. Let's talk about water supply problems for a moment. I am sure that you would agree that safe drinking water is essential to protecting public health and that contaminated water supplies threaten health and safety. And I am sure you

would concede that water supplies have been adversely affected by abandoned mine sites; isn't that a fair statement?

Mr. CHRISTENSEN. I think, Mr. Chairman, that I agree. If we can tie them in to pre-1977 abandoned mine lands and there is a health and safety problem, we would determine that that is something that ought to be taken care of.

Senator SASSER. Well, aren't you obligated under the law to treat as Priority 1 and 2 areas where the public health and safety are adversely affected by abandoned mine sites?

Mr. CHRISTENSEN. Yes.

Senator SASSER. Well, it appears to me that what you have done is to establish a very rigorous schedule for a contaminated water supply to be graded as Priority 1 or Priority 2. You have established a series of very high hurdles which appear to be designed to hold down the number of such Priority 1 or Priority 2 designations, which would allow these communities to have access to the funds to deal with the water quality problem.

Now, is it going to take Congressional action on the part of this Committee or other Committees to allow these funds to be released to stop this business of setting up this complex series of hoops that communities must jump through in order to have access to these funds to deal with water quality, to deal with health and safety?

Mr. CHRISTENSEN. I think basically, Mr. Chairman, the answer is yes. When you in the Congress passed this law in 1977, criteria were set up on how these monies should be spent, and water systems enhancements and work is a Priority 5. We have also been told by the Congress to spend the money only on Priority 1 and 2 work.

Now, recognizing that some of these are problems, we have come up with some criteria to allow these projects to be examined as Priority 2 so the work can be done. But I think we are trying to follow the law as carefully as we can.

Senator SASSER. Well, now, Mr. Christensen, it is my understanding that the statute does not deal directly with water quality, and I have before me a directive, a document entitled "Directive Systems, Office of Surface Mining Reclamation Enforcement," and this document sets up a policy and a procedure under which communities must operate in order to access funds to deal with the problems of poor water quality caused by mine runoffs.

And you have got a whole series of procedures here: Procedure 1, procedure 1a, procedure 1b, c, d, e, f. It goes on and on: Procedure 2, a, b, c, d; procedure 3, a, b, c, d, and e. These are not part of the statute. These are directives and rules and regulations promulgated by the Office of Surface Mining, are they not?

Mr. CHRISTENSEN. That is exactly right, Mr. Chairman. I think all we have tried to do is find a way of dealing with these projects and if they legitimately fall into a Priority 2 category based on that criteria, we will do the projects. I think you need to understand, Mr. Chairman, we are not trying to stop it. What we are trying to do is to determine that there is some flexibility in the law to allow us to do it, and based on this, if we have this kind of information, we feel that we can go ahead and do these projects without the IG or someone else coming in and saying, you have illegally funded projects, Mr. Christensen, and you are liable for that.

Senator SASSER. My point is, Mr. Christensen, that it is the Office of Surface Mining that set up these procedures by which communities can qualify if they are suffering from poor water policy.

Mr. CHRISTENSEN. Yes, sir.

Senator SASSER. This is not a result of statute, as I heard you say a little earlier.

Mr. CHRISTENSEN. That is an interpretation of how we would make these projects Priority 2 so that we could fund them.

Senator SASSER. Now, the State of Tennessee—and you and I have discussed this issue at great length before. We have discussed it in my office on a number of occasions. I discussed it at great length on the floor of the United States Senate some months ago.

But my State of Tennessee has an even greater problem of getting funds from the Office of Surface Mining for reclamation of these abandoned mine lands. We are really between a rock and a hard place in the State of Tennessee. Not only do we not have primacy and therefore do not have a State program to deal with this problem, but the Federal Government completely refuses to operate a program in the State of Tennessee. Yet it continues to collect money from mine operations in the State.

Now, why is it that you will not operate an effective Federal program in Tennessee when you do operate a Federal program in Washington State and in Georgia? Both of these are States without primacy. You have gone in and not only reclaimed virtually all of the abandoned mine land sites in Washington and Georgia but you have spent more money there than either of these States paid into the Abandoned Mine Land Fund. I am sure that some of the funds collected from the State of Tennessee that we cannot access have been spent in Georgia and Washington.

Now, we are facing the loss of money that our coal operators from Tennessee have paid into the Abandoned Mine Land Fund. We paid more than $4 million into it, the operators have. Yet OSM will not release that money to the State or spend it in the State on our behalf. We are getting the short end of the stick.

Why is it that we expect the State of Tennessee to do certain things and we do not expect Georgia or Washington State to do those same things. Why cannot the Federal Government come in and administer our program as it did in Washington and Georgia?

Mr. CHRISTENSEN. Mr. Chairman, from the very start of the program there have been several States, including the two you have just mentioned, who have indicated right up front they had no intention of taking over any kind of reclamation program as far as enforcement. That have written us a letter——

Senator SASSER. So we made our mistake in Tennessee in indicating initially that we would try to take over the mine reclamation program?

Mr. CHRISTENSEN. No, sir. There is more to it than that. They never had any intention and they so wrote to the Secretary of the Interior that they had no intention of ever taking over the program and they would prefer a Federal program. At that point then it is the obligation of the OSM to go in and do that kind of work where it needs to be done.

Now, as you remember, the State of Tennessee at one point took over the program, decided to not keep the program, but there is

still an indication that there is some interest in maybe perhaps taking the program over some day. The State has never written OSM and said, we will never take this program back, it is going to be yours forever.

Obviously, we are encouraging them to take that program and that is why we have kept these funds accounted for for the State, hoping at some point they will take the program back and we can release those funds, which the law would allow us to do at that point.

Senator SASSER. Well, what if Tennessee wrote you a letter and said, we do not ever intend to take the program back? Would we then get a Federal program in Tennessee?

Mr. CHRISTENSEN. We have a Federal program now as far as enforcement and I would at that point say, Mr. Chairman, that it would be appropriate for us to go in and start doing some of this work.

Senator SASSER. Well, in other words, if we do not retake primacy we are going to continue to lose this money unless the State certifies to OSM that there is not going to be any primacy ever, and then we could get a program run by the Federal Government in Tennessee? Is that a fair statement?

Mr. CHRISTENSEN. That would be one way of taking care of the problem, yes. Obviously, if there is emergency work that needs to be done in the State we go in and take care of that.

Senator SASSER. Now on another subject, just how OSM approaches reclamation. I have received many complaints that when OSM responds to an emergency we see a band aid approach. That is, as little as possible is done to abate the immediate situation.

For example, there is a case that I am advised of involving a landslide in Virginia. Even though this landslide had been classified as an emergency, OSM waited so long to respond to the situation that the family had already moved out of the area because of fear for their lives. When OSM did respond, it only moved the dirt that was nearest to this family's house. Nothing was done to address the underlying cause of the landslide.

The landslide has since resumed and is currently piling up against the walls of the house that was threatened. The inhabitants have had to stay away and apparently will never be able to return to their home. So we see that OSM is responding slowly to these emergencies and only doing a cosmetic job at the site. Those are the allegations.

Now, what steps are you taking to first improve OSM's response time in emergencies, and second, to do more than a temporary patch-up at these emergency sites.

Mr. CHRISTENSEN. Mr. Chairman, sometime—oftentimes—there is a discrepancy on who thinks what is an emergency. However, basically our policy recently—in the last couple of years—has been that OSM will respond when there is an emergency situation, make a determination and stabilize the problem until such time as the State can come in and, through their regular grant process, request funds to go ahead and finish the project themselves.

Senator SASSER. A question occurs to me. Have you ever communicated to the State of Tennessee that they will get a Federal pro-

gram of reclamation for abandoned mine land if they say they will not take primacy?

Mr. CHRISTENSEN. I think they understand that; that is how it has worked in other States. Since they took the program over at one point and we anticipate or hope that they do so again, we want to keep those funds available for them.

Senator SASSER. Well, that is the first time I have understood it in that way, and I dare say that State officials in Tennessee do not understand that at the present time or I think a letter would be forthcoming.

What do they need to do? Just write you a letter and certify that they are not going to take it over?

Mr. CHRISTENSEN. I think they basically need to forgo any claim on those funds and indicate to the Secretary of the Interior that there is no intention of ever having a program in the State of Tennessee run by the State. At that point we would make a decision to take those funds, put them in the Secretary's fund and determine where they need to be spent.

Senator SASSER. Well, why type of program would you then set up for the State of Tennessee?

Mr. CHRISTENSEN. That does not necessarily, of course, guarantee that the State would get those exact funds that we are talking about here. That means that if there is work that needs to be done of a Priority 1 and 2 nature that we feel is important, and looking at all other States where the money could be spent, where is the greatest need. Once that determination is made, projects may or may not be done in Tennessee.

Senator SASSER. So, in other words, if they certify they are not going to take primacy, they may or may not get the funds back.

Mr. CHRISTENSEN. It is a matter of where the greatest need is.

Senator SASSER. If they certify they are not going to take primacy and you set up a program, they may or may not get back the amount of funds that they have paid into the Abandoned Mine Land Fund Program?

Mr. CHRISTENSEN. That is right.

Senator SASSER. And we do not know precisely what kind of program at this juncture the Federal Government would administer as far as the State is concerned if they came in and took over the program.

Mr. CHRISTENSEN. That is correct.

Senator SASSER. So in essence you would be shooting craps to see what kind of program you get and also how much of the money you had paid into the program you would get back.

Mr. CHRISTENSEN. Mr. Chairman, I think when the Congress passed this law originally, they recognized that there were going to be a lot of States that did not necessarily want to take over the regulatory program. I see the AML program, the way it was set up in the law, as basically a carrot to the States to say, look, you are going to get this money back to do reclamation work if you have a program. And we will also pay 50 percent of the costs of your regulatory program.

Obviously, I think that is what Congress had in mind and that is the way we are implementing the law.

Senator SASSER. Let me ask you this question, the Administration apparently sees the Rural Abandoned Mine Program as duplicative and unnecessary because every year the Administration tries to kill the Rural Abandoned Mine Program. Now, when Congress legislated that program it saw a clear distinction between the Abandoned Mine Land Fund reclamations and Rural Abandoned Mine Program reclamations and saw a need for both of these programs.

The creation of the Rural Abandoned Mine Program was a conscious act. It was not just an accident that happened over here in the legislative branch of Government late one night when nobody was paying any attention.

Now, I think the Rural Abandoned Mine Program has been a very successful program and very well received. In some areas the Rural Abandoned Mine Program provides the most viable reclamation of abandoned sites, and I do not think we ought to be cutting back on that program. Contrary to your assertions, at least in my State, the Rural Abandoned Mine Program is more effective in mine reclamation than the Office of Surface Mining.

Now, why do you continue to press for shutting down the one mine reclamation program which can effectively address the health and safety problems in my State?

Mr. CHRISTENSEN. Mr. Chairman, again, let me reiterate that an important policy of this Administration has been to support the States' regulatory programs and their AML programs. We believe the money can be much better spent and better utilized through the State program by giving the State the money to decide where they feel it is most important to spend these funds.

The RAMP program has had some good successes and we admit that. That is not the problem. I think it is a matter of supporting the States and their AML Programs and not diverting the funds from where the States have absolutely no authority or control and giving it to someone else to do the work.

Senator SASSER. Well, it appears to me that what we are trying to do is reclaim abandoned mine sites and if we have got a program that is doing a good job, as the Rural Abandoned Mine Program is, it appears to me that we ought to be supporting that program and not trying to kill it.

When the abandoned mine land inventory update is complete, do you feel that fee collection should be extended past 1992 in order to reclaim high priority abandoned mine land sites?

Mr. CHRISTENSEN. Mr. Chairman, what we have undertaken is a study to provide information to the Congress that will allow them to make that kind of decision. We will have that study completed about the middle of 1989. That will give the Congress plenty of time to determine what are the needs, what has been done with the money, how much has been collected, and make a decision at that time on how they want to proceed with that program.

Senator SASSER. Well, Mr. Christensen, we appreciate you appearing here this morning and giving us the views of the Office of Surface Mining. I am sure that we may have additional questions which we will propound to you later.[11] And I want to say to you

[11] See p. 50.

this morning that this whole question of the State of Tennessee getting its fair share of this money that has been collected and is being held by the Office of Surface Mining is not going to end here. We are going to continue to press for that and see what can be done.

I want to admonish you that when we get into the appropriations process next year, as far as this Senator is concerned, I am going to be looking very carefully at the Office of Surface Mining to see that there is a substantial request made for appropriations that will make a large dent in that Abandoned Mine Land Fund that is being held back and I want to see these funds put to work to start reclaiming the abandoned mine land sites all across this country.

Thank you.

Mr. CHRISTENSEN. Mr. Chairman, I assure you if that money is appropriated, it will be allocated to the States.

Senator SASSER. Well, I can assure you that you are going to get a substantial appropriation next year.

Thank you.

Mr. CHRISTENSEN. Thank you, Mr. Chairman.

Senator SASSER. Our next group of witnesses will be a panel consisting of Mr. Jim Lyon, Mr. Tom Galloway, and Ms. Barbara Levi. I want to welcome our panelists and say that Mr. Lyon is representing the Environmental Policy Institute, and is an acknowledged national expert on surface-mining issues, and he represents one of the most respected groups that deals with that issue.

Tom Galloway is a distinguished private attorney, who has spent a lifetime, at least a professional lifetime, representing the public interest with respect to coal mining.

And Barbara Levi, a Tennessee citizen witness, is a member of Save Our Cumberland Mountains, and lives near a terrible, unreclaimed mine site.

Mr. Lyon, we will begin with you this morning, and we look forward to your testimony.

TESTIMONY OF JAMES S. LYON, ENVIRONMENTAL POLICY INSTITUTE;[12] BARBARA LEVI, TENNESSEE CITIZEN WITNESS, MEMBER OF SAVE OUR CUMBERLAND MOUNTAINS (SOCM);[13] AND L. THOMAS GALLOWAY, PRIVATE ATTORNEY[14]

Mr. LYON. Thank you, Mr. Chairman. I would like to summarize my testimony for the convenience of time.

I am James S. Lyon, Director of the Citizens Mining Project of the Environmental Policy Institute. EPI is a national organization dedicated to influencing public policy regarding the impacts of energy, water, and agricultural development, and was a leading national organization working for the passage of the Federal Strip Mine Act.

With respect to the Subcommittee's time, I would like to focus my statement on just two pressing problems in the AML Program.

---

[12] See p. 63. for Mr. Lyon's prepared statement.
[13] See p. 76. for Ms. Levi's prepared statement.
[14] See p. 82. for Mr. Galloway's prepared statement.

First, the continued discrimination of AML-related water projects from being funded, and, second, OSM's response to AML emergencies.

For several years, State regulatory authorities and citizen groups have been raising the fact that OSM refuses to recognize AML-related water projects as a priority 1 or 2 project.

Many of the most serious AML project problems are water problems. Too many coal-field community water sources have been contaminated by runoff, or drainage of pre-Act abandoned mines.

These problems are not just restricted to private wells, but to community water systems as well. Until recently, the only recourse virtually available to a State, community, or citizen group to get AML water project funding was to obtain a line-item funding through the Congressional appropriations bill, and I think, as everybody knows, this is generally a very difficult, if not impossible task, to achieve.

Aside from this process, the only other option available to a community to reclaim a water system is by obtaining State funds, or filing a successful civil action against a responsible company.

Coal-field State budgets are extremely tight these days, and even more remote is the chance of legally tying water contamination to a coal operation over 10 years old.

So, in reality, without AML funding, these communities have, really, just two options: to pay for the new water source or system themselves, or drink the contaminated water.

Many of these communities are some of the poorest in this country, many on fixed incomes, which narrows these options even more.

Until recently, OSM's general defense for not funding water projects could be summed up in just two points. One, they are extremely expensive to fund, and would drain the limited AML resources from other needed projects, and, two, many AML water projects cannot be abated at the source, so reclamation involves either permanent treatment or the building of an alternative water system.

OSM officials have quite often confidentially said to us, that the agency feared opening the water project allocation door to any project, in that it would soon become Pandora's box.

On May 5, 1987, this general policy of not classifying any water projects as priority 1 or 2, but keeping them as a priority 5 was changed. For whatever reason, OSM's new policy is to address AML water project priority eligibility on a case-by-case basis.

This new OSM policy statement, which the Chairman alluded to earlier, lays out the criteria by which water projects are eligible for funding.

Promising as this may seem, questions arise when you look below the surface, as to whether there is any meaningful change in the policy at all.

State officials have informed us, that while OSM, has indeed, slightly opened the funding door, the States remain chilled out of the process. The problem centers on OSM's extremely stringent standards for eligibility and burden of proof.

In short, the States must prove that the water problem was solely a result of pre-Act mining. As the Chairman knows, in the

Eastern coalfields, where the regions have been mined, remined, and are currently being mined again by both surface and underground methods, the ability of a project to meet this methodology, especially with the very limited pre-Act data is extremely difficult.

One only needs to read the new OSM policy statement to understand that OSM still is not very interested in reclaiming water projects, and, as a result, the new policy statement has generated little optimism among the citizen groups.

Now before I leave this issue, I would like to impress upon the Subcommittee the importance of this problem. I am told several months ago, that over 500 people attended a State hearing in Harlan County, Kentucky, regarding the State's AML water study for funding the AML water project in the Yokum and Kenvir communities.

As the Chairman well knows, it is very difficult to get coalfield residents, in that large a number, to take part in public hearings. Nevertheless, it was a tremendous turnout of public interest, and a common statement that was made to the State, by the citizens, over and over again is: "Why are you spending money on reclaiming gob piles when we need water?"

My second point today is to bring attention to the problems associated with OSM's response to AML emergencies. When Congress wrote this Act, it clearly intended that OSM retain the responsibility to respond to AML emergencies. And by giving OSM this duty, Congress was ensuring that emergencies such as landslides, surface cave-ins, mine fires, et cetera, would be immediately responded to by the Federal agency.

It was thought that a State's responsiveness might be hindered by its other AML responsibilities. There appears to be a growing problem with OSM's ability to respond to AML emergencies in a timely manner. And I cite the example that you brought up earlier.

For over 2 years, the Miles Ratliff family in Grundy, Virginia, has faced an advancing landslide. The slide was generated by an AML site above their house. The State did an initial study and turned it over to OSM for emergency response.

OSM investigated the slide way back in April of this year, and, as of August, there was no action taken. Instead, at the time, they were still studying whether or not to determine if the slide was mining-related, or not.

Meanwhile, the slide moved up to the Ratliff's house, who have since had to evacuate it due to the danger.

Ironically, in the very recent OSM/State publication which you alluded to, the abandoned mine land program study, claims, on page 20: "When conditions are especially hazardous, emergency work can often be underway within 24 hours." This was hardly the case for the Ratliff family.

In 1985, in War, West Virginia, a woman died, and her daughter suffered brain damage, allegedly from toxic fumes generated from a burning coal refuse pile. This story was extensively covered in the Charleston Gazette.

Apparently OSM first investigated the refuse pile way back in 1984. Officially, it was deemed not to be an emergency, or a threat to area residents, and they turned it over to the State to be proc-

essed through normal AML channels. Several months later, the tragedy occurred.

Now these are perhaps two of the more egregious failures of OSM to carry out its emergency responsibilities in a timely manner. In part, the system suffers from a predictable problem.

From what I am told, OSM's emergency response is being hamstrung by bureaucracy, and I would like to clearly state at this point that it is not my intention to be critical of frontline OSM personnel, many of whose work should be praised today.

Rather, many of the problems seem to be embroiled in the system. Responsiveness is being compromised at the frontlines by increased paper work.

As the paper goes up the managerial chain, the process is slowed down even more. I am told that such delays are resulting in some cases of OSM taking up to a year--not 24 hours—but up to a year to get a contract signed for emergency work.

These cases bear little resemblance to the 24-hour pledge. I have also been informed that OSM has even studied the emergency delay process, but that the recommendations of the study have led to even more paper work being required.

The emergency response problems promise to get even worse in the future due to upcoming staff cuts in the AML Program. I am told that at least 20 AML, non-Washington, staff positions, are slated to be cut during the next fiscal year. It does not take a genius to understand that this will only exacerbate an already strained process.

Mr. Chairman, coalfield families whose lives and homes are presently, or in the future will be threatened by the dangers emanating from abandoned mines deserve a better response from their Federal Government. At least they deserve the benefit of the doubt. Thank you, sir.

Senator SASSER. Thank you very much, Mr. Lyon. Ms. Levi, I want to welcome you here today, and we look forward to your testimony.

Ms. LEVI. I am Barbara Levi, a biology teacher at Soddy Daisy High School in Hamilton County, Tennessee. I live on Flat Top Mountain section of Walden's Ridge, on Burchard Road, which runs parallel to the east escarpment overlooking the Tennessee Valley.

I have prepared written testimony that addresses many of the policy question surrounding the use and abuse of AML funds and have submitted them to the Committee.

I would like to take a few minutes today to tell you about the effects that abandoned strip mines have had on the quality of life in our community.

The Board Camp Creek site is within a half a mile of my home, and the home of 15 other people on Burchard Road. I would like to show you a map that shows this mine site.

Senator SASSER. Thank you.

Ms. LEVI. It is actually a photograph, an aerial photograph of the mine site. The site is a 175-acre area that was mined in the late 1960s and early 1970s. No reclamation attempts were made in this area until this year.

Since the area was mined before the reclamation bonds were required, no one would accept the responsibility of the area. The mine companies left the country, the Federal and State agencies claimed no responsibility for the site, and the landowners made little attempt, if any, to correct the situation.

So the land has been deteriorating, steadily, for 15 or more years. I would like to elaborate on some of the problems that have affected the local residents.

One problem has been the general misuse of the land by the general public. I have some pictures I would like to submit.

Senator SASSER. Ms. Levi, do you want these pictures to be made a part of the record, or do you need these back?

Ms. LEVI. It does not matter. Either way. Whichever is most useful.

Senator SASSER. We would like to make these photographs exhibits to keep with the record,[15] with your permission.

Ms. LEVI. Yes, you have my permission.

Senator SASSER. All right. Thank you.

Ms. LEVI. In these pictures you have examples of a typical garbage dump that a mine site becomes. All types of garbage are brought there, everything from truckloads of car tires, loads of old roofing, dead animals, and just general household garbage.

The people have the idea that since this land has already been devastated, it does not matter what else you do to it. It is also used as a bike track, a dirt-bike track, a 4-wheel vehicle track, which greatly erodes the area.

It is also a place for drug use and sales. It is a camping area for rowdy beer-drinkers. It is a rifle-shooting range. And even once, a corpse was buried there by a murderer. But it shows you the type of attitude that people take towards these areas.

Obviously these situations have created a nuisance in our neighborhood. But even this concern is not our greatest concern. Our greatest concern is the contamination of our local water table which supplies the only source of water that we have, which is deep wells.

The upturned shale from the spoils of mining is extremely toxic, and when the water leaches through it, it produces water of a pH of between 2.8 and 4.0, according to the national AML inventory performed in 1981.

The iron and magnesium levels of the water are extremely high at this site, too. The iron is so bad, that most of the time we have to take our white clothes to the valley to wash them at a washateria.

The mining activities and lack of reclamation have also caused the water table in the area to drop numerous times, causing the citizens to have to redrill their wells. Examples I have of this is Arthur Burchard, a disabled black lung patient who has lived on the road for about 50 years, has had to drill five different wells since the mining in this area.

Robert Elliott, retired, has lived in the area for 15 years, in which time he has had to drill three separate wells. Every resident

---

[15] See p. 129.

in the area has had to install expensive filtering systems to make their water even usable.

Of course the water problem is our main concern because land, or property in which there is not usable water, is of no use to the citizens.

We also have another problem of erosion, flooding, and siltation in our area. When we have a big rain or a flood, the erosion from the mine goes into Board Camp Creek, and then into Big Soddy Creek, and then into Soddy Lake, and then into the Tennessee River.

The mining has rendered all these creeks dead of aquatic life and has choked the streams with silt and sedimentation. Soddy Lake was, at one time, a 25–30-foot-deep lake, and now, in the deepest place it is about 6 feet, and most of it is a mud flat due to the mining.

The flood of August 16, 1982 demonstrates the danger that such a condition causes, when a Highway 27 bridge was washed into Soddy Lake, carrying with it three cars, occupied cars, during rush traffic time at 6 o'clock in the morning.

Another problem that is created by the unclaimed site has been the devaluation of the property near the area. This is one of the most uncounted costs of strip mining that has been borne by the residents of coalfields.

Our brow property is of the same beauty and quality as that of Signal Mountain and Lookout Mountain, but because of this eyesore in our backyard, it is of nowhere near the value.

This is bad because Hamilton County is advancing and expanding in the North Hamilton County area, also the new Corridor J Highway goes across the mountain, adjacent to the mining property, which will accelerate the rate of development.

But still, the presence of this abandoned mine is very detrimental to the development of this land.

Now the good news is that in 1987, this year, about $348,000 of AML money was appropriated for the Board Camp site. But the bad news is that this only was enough to reclaim 65 acres of the 175 acres. The most severe areas were not even attempted, leaving the 110 grade degree outslopes going down to the edge of the creek, and 200-foot highwalls with car-size boulders still tumbling down the highwalls, and of course contaminated acid water still going into the creeks.

I have some more pictures that shows the area that has been left unclaimed, still on the site.

Senator SASSER. Thank you.

Ms. LEVI. The Office of Surface Mining has chosen to cut Tennessee off from the discretionary funds that should be coming to Tennessee. We have been told by State officials, that even if Tennessee had gotten all the money it could possibly get between now and 1992, that it still would not be enough to reclaim all the land that remains scarred and bleeding.

We have just put a patch on this wound. Healing will require a commitment that this Administration seems unwilling to make.

And I would like to say that Mr. Christensen may be doing a good job administering the AML, but it is not solving the problem in Tennessee. I could site numerous abandoned mine areas within

50 miles of my home, that are left untouched, or halfway attempted, leaving us still with our problems.

Senator SASSER. Well, I just wish, Ms. Levi, that Mr. Christensen, and some of the personnel of the Office of Surface Mining had been here to hear your testimony today, and see some of these photographs of these abandoned mine sites.

I would be interested in getting their comments on that. I might say that the funds that you alluded to just a moment ago, that reclaimed some of the abandoned mine land sites, those were funds that OSM did not give up, voluntarily. I had to threaten to filibuster on the floor of the United States Senate. In fact I had to hold the floor for about 3 or 4 hours there one day before we could finally get an agreement out of them, that they would send these funds down to the State. We will have some questions of you in just a moment. We turn, now, to Tom Galloway. I want to welcome you here, Mr. Galloway. We look forward to hearing your statement.

Mr. GALLOWAY. Good morning, Mr. Chairman. My name is L. Thomas Galloway, and I appear today on behalf of the Environmental Policy Institute.

In the brief time available, I would like to address, really, only one issue, and that is the relationship of remining to the Abandoned Mine Land Program.

The potential for remining to reclaim many of the thousands of abandoned sites in America's coalfields is great. We, in the environmental community, have worked hard on the remining issues in an effort to encourage remining of abandoned mine lands. We consider the issue of very high priority. No matter how well the AML fund is utilized, and even if the fund is extended beyond 1992, the fund cannot hope to reclaim the overwhelming number—and I might add—increasing number of sites which are unreclaimed.

The incentives for remining could take many forms, some of them responsible, and some not. As far as environmental constraints on remining are concerned, the environmental community has, on several occasions in the past, agreed that application of certain performance standards intended for virgin sites may not make sense in a remining context, and that different and, in some cases, lesser environmental controls may be warranted.

In the past 3 years, we believe that we have addressed the major environmental constraints on remining. For example, we agreed to special provisions in the Federal Water Pollution Control Act, which was recently amended on remining.

In addition, we have addressed the high-wall issue in remining and the revegetation issue. Consequently, we believe that the major work in restructuring initiatives and incentives to encourage remining will lie in other areas.

One major possible incentive is to utilize a portion of the AML fund to encourage remining, thus leveraging the monies in the fund, and bringing about more reclamation for the dollars expended.

My primary objective today is to emphasize the need for a mechanism to examine the problem, rather than offer substantive proposals to increase remining. We have a number of ideas which we believe would increase remining significantly, and which we believe merit consideration.

However, much work is needed on those ideas before we, or any responsible party could advance them as concrete proposals for legislation or regulatory action.

Also, without doubt, our ideas would benefit greatly from a cross-fertilization process with others interested in and expert on the issue. However, the basic idea is to look at the AML fund and see how we can leverage that money to get more reclamation for the dollars expended.

Now there have been a number of attempts to examine reming, most recently by OSM. However, to be successful, at least in our view, the issue in the debate needs to be raised to a higher plane, and must involve not simply OSM, but ranking departmental personnel and Members of Congress, especially those from the coalfields.

The issue merits this level of attention, and without the attention of such persons, I do not believe much progress is likely. I might note in closing, that Chairman Udall has expressed a strong and sustained interest in pursuing this idea, and Chairman Rahall, who now is exercising jurisdiction in the Subcommittee over the AML Fund, has likewise expressed a strong interest in this idea. Thank you.

Senator SASSER. Thank you very much.

Let me just start with you, Ms. Levi. Would you please tell me about your contacts with the Office of Surface Mining about the abandoned mine site near your house. Have you had any contact with them, and, if so, describe it to us, and how satisfactory was it?

Ms. LEVI. Well, we have been working for about 8 years to try to get some funds to have this area reclaimed, and most of the time it has just been putting us off, excuses, until this year, and I understand that you, Senator Sasser, played a big part in getting the funds for our area, and I would like to bring thanks from the citizens in our area to you for helping us to get this money.

I know that there are a lot of different abandoned mine-land areas, and that there are a lot of requests being made for the use of that money, and I can see where, that all of them cannot be appropriated since there may not be enough money, or if the money is available it is not being used. Whichever it is just taking too long for the areas to get relief.

Senator SASSER. Well, I could not agree with you more, and one of the reasons for this hearing today is to point out the fact that there is $400 million that has been collected under the law that is being held by the Office of Surface Mining, and we need to get that $400 million out to these abandoned mine sites, so they can be reclaimed.

We have seen, for example, in our State of Tennessee, that 99 percent of the abandoned-mine land stands unreclaimed today, and we have got to find a way to get that money out there to get the job done.

So your story would be, then, Ms. Levi, that in dealing with the Office of Surface Mining, you have been getting put off. There have been delays, years of inaction, until just recently, when some progress seems to have been made.

Ms. LEVI. I would also like to point out the fact that, within 50 miles of where I live, there is numerous other sites that have had

nothing done to them, and part of them have been halfway attempted, maybe parts of the area reclaimed and parts not.

Of course some of these are areas that have been reclaimed since the reclamation bond law, but we still have many sites that need help.

Senator SASSER. All right. And with regard to emergency situations, when there is imminent threat to safety or public health, how does the Office of Surface Mining react to these emergency situations and who do you contact?

Ms. LEVI. Well, that is another problem in the area. Tennessee has no contact person at the Office of Surface Mining, so we do not even know who we would contact, since there is no contact person there.

I understand that someone in Pittsburgh, or somewhere else, would have to be the contact person.

Senator SASSER. So, in other words, if we have got an emergency in the State of Tennessee involving danger to safety or public health, there is not even a person with the Office of Surface Mining in the whole State, that we can contact and report the emergency to.

A citizen has to contact an official in Pittsburgh, Pennsylvania, to report that emergency?

Ms. LEVI. There is no contact person in Tennessee for an emergency.

Senator SASSER. Now Mr. Lyon, as you know, the Abandoned Mine Land Fund is scheduled to expire in 1992, and the Congress, at that time, is going to have to decide whether to reauthorize the program, and, if so, whether any changes are going to be made to it.

Do you think, up to now, that the program has been a success, or has it been a failure, and do you think we ought to reauthorize it?

Mr. LYON. Mr. Chairman, where the money has actually gotten to the ground, in many cases the program has been an enormous success. However, there are many problems with the program.

Essentially, the simple fact is the fund is underfinanced for the enormous need out there.

And as long as that need is hundreds of thousands of acres of abandoned-mine sites out there, I think there is no question that the fund needs to be reauthorized. I think it is safe to say, on behalf of the environmental citizen community, that we are totally behind extending the fund past 1992.

Now, what the fund ends up being is open for question. There certainly will be some changes involved. We are currently developing our own position on that in terms such issues as what role remining will have into it; or trying to solve the problem that Tennessee is in, where you have generally the coal-field communities in between a State and Federal fight; how much money should be collected; how much should be expended; should it be indexed; and should there be interest rates? Those are all situations that need to be worked out.

But back to your original question, I think it would be sheer irresponsibility on anyone's part to be publicly saying that the fund should not be reauthorized in relationship to the enormous and serious need out there.

Senator SASSER. We have heard Ms. Levi describe the fact that the emergency response from the Office of Surface Mining is poor, to say the least, in the State of Tennessee, perhaps even nonexistent. I believe that emergency response to a threat to public health and safety should be the highest priority of the Office of Surface Mining.

I am frankly dismayed by the agency's increasingly poor record of response to emergencies, and the additional staff cuts in the Abandoned Mine Land Program. What do you think should be done to correct this problem?

Mr. LYON. I do not pretend to have all the answers on this one, but two things immediately come to mind. There is a dire need for independent assessment of OSM's management process on its emergency response, whether this be GAO, or some other independent approach. It certainly should not be an in-house effect.

They need to take a look at the bureaucratic red tape between the field office and the tech center in Pittsburgh. They need to look at why there is no emergency contact person in Tennessee. That is news to me.

They also need to take a look at the bureaucratic problems in the process when it goes from the tech center to Washington. They should then follow it all the way back to the emergency.

Recommendations need to be made in terms of streamlining this process. This is just one area where red tape simply is unacceptable.

The second point is even more obvious, and that is that OSM should not sustain cuts in the Abandoned Mine Land Fund program that is going to impact emergency work. Twenty cuts in non-Washington AML staff is going to—as I said before—do nothing but exacerbate the already increasing delay problems.

Talking with the OSM field personnel on this one, they are really fearing what it is going to mean in terms of human tragedy.

Senator SASSER. One final question. The failure of any AML funds to be expended in Tennessee, or a very small expenditure there, due to the revocation of primacy, has been a source of real disappointment to me. Now I understand that the law prohibits a non-primacy State from receiving the so-called State's share of funding.

With the exception of the AML emergency money, do you read the law as saying that a non-primacy State should be prevented from receiving any AML funding, especially from the Federal share?

Mr. LYON. The answer is unequivocally no. There is no question that the State is prohibited from getting State-share funding, but there is nothing in the law that prohibits OSM from spending Federal share, RAMP dollars, emergency dollars. And I think you have brought up an important comparison today about why is OSM funding the Washington and Georgia Federal program and not funding Tennessee? There is nothing legally restricting OSM from doing this.

I think they have a moral responsibility to get some money out there on the ground. We do appreciate the "carrot and stick" approach, if the State is interested in getting primacy back. However,

I do not believe Congress intended that coalfield communities be put in the middle.

The idea of the Abandoned Mine Land Fund was to reclaim land, not to primarily be an incentive for a State to keep primacy. And as an aside, I must comment that Mr. Christensen's explanation of the reason that he is not spending any Federal share of dollars in Tennessee is the fact that they have not gotten a letter from the State saying that they do not want primacy any more, is really one of the more amazing statements that I have heard the Agency make for some time.

Senator SASSER. Frankly, I was amazed at that myself.

Mr. LYON. That is a new one.

Senator SASSER. Right.

Mr. LYON. In our mind—Tom, you can correct me on it—there is absolutely no basis in law for something like that.

Senator SASSER. What do you say about that, Mr. Galloway? You are a lawyer?

Mr. GALLOWAY. I defer to Jim on AML issues, but generally, I agree with Jim on that.

Senator SASSER. All right. Well, listen, thank you very much for appearing here today and giving us the benefit of your views, and your opinions, and if there are any additional questions we will submit them to you in writing, and would ask that you respond.

Thank you very much for appearing.

Our next witnesses consists of a panel consisting of Mr. L.H. Burnett, Mike Kastl, and Richard Bielicki. Mr. Burnett is with the Soil Conservation Service in the State of Tennessee, and is a representative to the Appalachian Coalition for abandoned mine reclamation.

Mr. Mike Kastl is the AML program director in Oklahoma, and last year's president of the Association of AML Programs.

Mr. Richard Bielicki is the director of the Bureau of Abandoned Mine Reclamation, Department of Environmental Resources, State of Pennsylvania, if I am not mistaken.

Gentlemen, we welcome you here today. We will honor seniority, Mr. Burnett. The longer I am here, the more I respect that, and we will begin with you.

TESTIMONY OF L.H. BURNETT,[16] TENNESSEE SOIL CONSERVATION SERVICE; RICHARD BIELICKI,[17] PENNSYLVANIA DIRECTOR, BUREAU OF ABANDONED MINE RECLAMATION, DEPARTMENT OF ENVIRONMENTAL RESOURCES; AND MICHAEL L. KASTL,[18] OKLAHOMA AML PROGRAM DIRECTOR

Mr. BURNETT. Mr. Chairman, Members of the Subcommittee on Government Efficiency, my name is L.H. Burnett, Chairman of the Tennessee Surface Mining Committee, Chairman of the Grundy County Commission, the governing body of the county; Chairman of the Grundy County Soil Conservation District; and a resident of Pelham, Tennessee, which is located in the Lower Cumberland Mountains, a coal-strip mining region.

---

[16] See p. 88 for Mr. Burnett's prepared statement.
[17] See p. 96 for Mr. Bielicki's prepared statement.
[18] See p. 101 for Mr. Kastl's prepared statement.

I am the Tennessee representative to the Committee of Appalachian Coalition For Abandoned Mine Land Reclamation, an 8-State group concerned with coal strip mining problems.

I am also on its executive committee, and its treasurer. This coalition of Appalachian Mountain States is a part of a national association of conservation districts.

I am also representing 21 Tennessee counties that have a valuable resource of coal, coal that is being and has been stripped from the mountains and plateaus of one of the most scenic regions of our nation.

Unfortunately, many areas within the region were stripped and abandoned prior to 1977, and continue to spew sediment and acid water, and presents tremendous health and safety risks to the rural communities, and to citizens who attempt to make a livelihood working in the region.

My purpose for appearing here today is to speak forcefully in support of full funding for the Rural Abandoned Reclamation Program, better known by some people as the Rural Abandoned Mine Program or RAMP.

This program is part of Public Law 95–87, titled the Surface Mining Control and Reclamation Act of 1977. This Act established, number 1, the Office of Surface Mining, and provided for abandoned mine land funding to qualified States.

Number 2, discretionary funding by the Secretary of Interior to qualified projects.

Number 3, Rural Land Reclamation Program, or RAMP.

The law allows that up to 20 percent of a reclamation fund made available to the Secretary of Interior may be transferred to the Secretary of Agriculture to be used in the RAMP Program, which is administered by the Soil Conservation Service.

In my 10 years of experience as a leader and concerned citizen, never have these funds been provided greater than 5 percent in any one year. In my opinion, a limited 5 percent of appropriated RAMP funds has been used wisely and efficiently, according to the intent of Congress when Public Law 95–87 was passed.

However, there has never been enough funds available for RAMP to do the kind of job needed. According to records available for the past 4 years, 65 percent of all RAMP funds were used for direct, on-the-land reclamation; 25 percent for technical assistance to landowners; and 10 percent for administrative and overhead costs for the Soil Conservation Service.

The problem, as I see it, is the Secretary of Interior has failed to adequately request and transfer an amount approaching the 20-percent intent of Congress. As a matter of fact, the Secretary has not even recognized the benefits and impact that RAMP programs can have in rural communities that depend on agriculture and timber for its economic existence and well-being.

I have come before you to testify to you about the needs and benefits of the program carried out by local soil conservation districts with technical and contracting assistance of USDA's Soil Conservation Service.

The Abandoned Mine Reclamation funding is not new money, but money that has been collected from coal-mining operations,

and is being held in trust by the U.S. Treasurer, and appropriated, annually, by Congress, to the Secretary of Interior.

This fund is derived from an assessment of 35 cents per ton of coal produced by surface mining, and 15 cents per ton from underground mining. The amount of fees generated in the abandoned mine funds beginning in fiscal year 1978 through fiscal year 1986 is in excess of $1.8 billion, and approximately $240 million is collected annually.

Only $88.6 million was transferred to the Secretary of Agriculture for fiscal year 1978 through fiscal year 1986, compared to a potential funding at the 20-percent level, or a total of $360 million.

The Rural Abandoned Mine Program is a 15-year program to expire in 1992 with a national goal of treating 20 percent of the abandoned coal mine land.

At the end of fiscal year 1986, funds available have allowed only 258 acres of Tennessee's eligible abandoned coal mine land to be reclaimed through the Rural Abandoned Mine Program.

There is an apparently breakdown in the budget and appropriation request when it comes to funding the RAMP program. I am requesting this Subcommittee to amend Public Law 95-87, section 401, to read:

> Twenty percent of the Abandoned Mine Reclamation Funds will be annually appropriated directly to the Secretary of Agriculture budget and then transferred to the USDA Soil Conservation Service for implementation of the Rural Abandoned Mine Program.

Nationally, there are approximately 1.1 million acres of abandoned mine land of which Tennessee has approximately 46,000 acres.

The acreage in Tennessee is yielding approximately 4.6 million tons of soil annually. If this annual soil also is loaded is rail cars, the train would reach a distance of approximately 562 miles. Imagine how long a train would be for the erosion occurring on 1.1 million acres in the United States.

Through fiscal year 1986, nationally, 579 RAMP contracts reclaiming 10,135 acres have been carried out, of which 36 contracts and 240 acres are in Tennessee. Nationally, this work has eliminated over 1,000 health and safety hazards, controlled erosion on 6,200 acres, and prevented 618,000 tons of erosion from leaving the sites.

Visual quality has been improved on 5,400 acres, and water quality improved in 57,600 acres of lakes, and 277 miles of streams since the program began in 1979.

The job has only begun with over 10,000 acres reclaimed out of a total of 1.1 million acres nationally. I realize that the AML program that provides for funding individual State programs is also an important factor reclaiming abandoned lands.

However, it has a certain objective and goal that complements special rural community reclamation efforts to protect life and health, and restore land to productive agricultural uses.

Senator SASSER. Mr. Burnett, could I interrupt you there?

Mr. BURNETT. Yes, sir.

Senator SASSER. We have been joined by Senator Heinz, and we are running out of time, quite frankly. So, if you have no objection, Senator Heinz, we will ask Mr. Burnett to include the remainder of his statement in the record as if read.

And I would like Mr. Burnett one question, but before doing so, I will defer to Senator Heinz for any statement that he might wish to make.

OPENING STATEMENT OF SENATOR HEINZ

Senator HEINZ. Well, Mr. Chairman, you are very kind. First, I commend you on the hearing. I do have a statement I would appreciate putting into the record in its entirety, and I will reserve my time until it is appropriate to ask questions of the panel.

[The statement of Senator Heinz follows:]

PREPARED STATEMENT OF SENATOR HEINZ

Mr. Chairman, I am very pleased to have this opportunity to review a program which is so essential to the health and safety of those who live in coal producing States. The Surface Mining Control and Reclamation Act of 1977 provides critical assistance to States, like ours, where abandoned mines are plentiful, and where responsible parties have long since left the business or have died.

My home State of Pennsylvania is the largest user of the Abandoned Mine Reclamation Program, created under title IV of SMCRA. Pennsylvania has one-third of all the abandoned mines in the country. Pennsylvania also has produced twice as much coal as any other State in the Union. Pennsylvania's AML Program has identified over 4,800 high priority problems with a reclamation cost estimated 4,800 high priority problems with a reclamation cost estimated at nearly $2 billion. Addressing all abandoned mine problems in the Commonwealth could cost up to $15 billion.

The Chairman has already cited several cases in which Pennsylvanians lost their lives to abandoned and unreclaimed mines. I would like to add some observations of my own—last fall a basketball court in Scranton disappeared in a mine void. Fortunately, no one was hurt. Two Summers ago a backyard pool drained empty in Luzerene County. The pool bottom had disappeared into an abandoned mine.

Finally, in Pottsville, Pennsylvania, a few years ago, a young man was killed when a hill of mine waste gave way, tumbling the boy and his four-wheeler down the embankment.

This Senator certainly understands the importance of the Abandoned Mine Reclamation Program. The AML fund is authorized until 1992. At that time it is estimated that fee collections will have raised $3 billion. It is sadly obvious, however, that the current program will only make a dent in the total amount of abandoned coal mine acreage. Many of Pennsylvania's priority one and priority two sites, by definition the most dangerous, will remain untouched in 1992. A question our subcommittee should address today is whether the current program should be reauthorized by Congress, and if so, how we can ensure that the most dangerous sites will be addressed?

One of the most serious concerns I have is the growing surplus in the AML fund. At the end of this year, nearly $400 million will have accumulated in the fund. At the same time, OSM's request for funding for State reclamation program grants is $150 million for this year.

I would like to know why the Office of Surface Mining and Reclamation Enforcement has consistently requested far less for State grant programs than the fund has taken in, particularly given my State's needs.

In addition, I am concerned by decisions taken by OSMRE with regard to the discretionary funds. Congress has directed that funds be used for the protection of public health, safety, general welfare. Where inadequate inventories of nationwide AML needs are used by OSMRE, the purposes of SMCRA will not be adhered to.

One method to ameliorate the hazards of abandoned mine lands is the remaining of such lands. Remaining coal left over by another operator both produces more coal and reclaims the abandoned mine. Today's witnesses will help us learn how we can best encourage safe and effective remaining.

In sum, I hope that today's hearing will help us learn whether or not AML funds are being used to clean up mine land hazards in proper priority, with dangers to public health and safety having top priority.

Mr. Chairman, we have an outstanding panel of witnesses, and I thank you very much for this opportunity.

Senator SASSER. Thank you. Mr. Burnett, let me just ask you, how much does it cost to reclaim an abandoned mine site under the

RAMP program in Tennessee, and how does that cost of reclamation compare with the cost of reclamation programs conducted through the State abandoned mine land program?

Mr. BURNETT. Mr. Chairman, it costs from $3,000 to $5,000 an acre to reclaim them. It is according to the site, the highwalls, and how much dirt has got to move per acre. Now I do not know what State—I do not have those figures available.

Senator SASSER. You do not have figures for what it might cost in other States?

Mr. BURNETT. No, sir. I do not.

Senator SASSER. All right. Well what are the nature of the water-quality problems that are encountered with these abandoned mine lands?

Mr. BURNETT. We have, in Grundy County, which is my home county—we have country roads, that we have had to replace the metal tile where the rural abandoned mine land's water is going under the road, and in one year, they eat these corrugated metal tiles out, and it is a pH as low as 2.

And also, we have got some water problems with our North Grundy water supply. The Secretary's discretionary fund spent some money on this lake, but it is still polluted, and it still has a high acid, and it has to be treated before the public can use it.

Senator SASSER. Thank you, Mr. Burnett.

We will turn, now, to Mr. Bielicki.

Mr. BIELICKI. Thank you, Mr. Chairman.

I guess, in the context of time constraints, I will not read my testimony, if that is to your pleasure, and I will just highlight, maybe, some of the points I wish to make?

Senator SASSER. Yes. It would be much appreciated if you would summarize your statement.

Mr. BIELICKI. Okay. First of all, I would like to emphasize that we feel there is a definite need for a higher annual appropriation.

The abandoned mine land problems are there, and the States' ability to address those problems are there. We have heard a lot of talk about obligation rates, and tying the appropriations to obligation rates.

In 1985, for example, OSM pointed to a 30-percent obligation rate by the States, of all the monies that they had received up to that point in time. However, that obligation rate is nearly 70 percent today.

There are a number of different reasons why we have not attained the 100-percent level, but we probably never will, but we are working towards that goal and we think that we are managing the program in a very efficient and economical manner, in a manner that is getting the work done that needs to be done.

We definitely feel that higher grants and higher appropriations will be an asset to the program, and that the States can handle those higher appropriations very effectively.

My second main point is, directed to the inventory that the Office of Surface Mining uses to effect a portion of the allocation for the Secretary's discretionary share. We feel that the decision by OSM to close that inventory for allocation purposes, after July 31st of this year, is an error.

We feel that decision will impair the dynamic effectiveness of the inventory and it will not be, in any way, shape, or form, an asset to the program.

The inventory is currently a listing of only priority 1 and 2 problems. There are many other AML problems that exist in the nation that are not of a priority 1 or 2 nature.

There are many additional problems that will be discovered in the future, that are not in the inventory, that will be of a priority 1 or 2 nature. I feel that the inventory is dynamic, and if it is to be effective, if it is to be utilized for all the purposes that the inventory is there for, it must remain open to reassessment for allocation purposes.

There are very many other reasons why it should remain open. For example, in the Chairman's State of Tennessee, if Tennessee would get their Title IV Program back, their share of the Secretary's discretionary fund would be little or nothing, based on the fact that no effort has been made to update the inventory for Tennessee. Other States face the same dilemma.

The magnitude of the priority 3 problems alone, nationwide, is enormous. There are probably 5 to 10 times more problems nationwide (dollar-wise) in the priority 3 area than there are in the current inventory of priority 1 or 2. OSM has recently said the closed inventory will attain a level, that they hope to account for by December 1st of this year, of $6 to $8 billion just for priorities 1 and 2.

That is more than a tripling of the current inventory amount, and a very, very significant increase, since the States have been doing their best to document these kinds of problems.

If priority 3 problems were allowed in the inventory, that number would be enormous and gigantic, but it would be a true measure of the nationwide extent of the abandoned mine land problems that exist. Closing the inventory as of July 31, 1987 precludes consideration of these priority 3 problem.

Pennsylvania, alone, has a $15 billion backlog of abandoned mine land problems. We have approximately $2 billion that are accounted for, that we think will be accounted for in the final tabulation, in OSM's inventory.

My third point is the need to continue the program past 1992. We feel that that goes without saying. There is absolutely no doubt, in Pennsylvania's mind, that the program has been very effective for Pennsylvania. It has been a program that we are proud of, and that we wish to continue not only for those reasons, but because the enormous need will continue to exist after 1992.

Thank you, sir.

Senator SASSER. Thank you, Mr. Bielicki. Let me just ask one or two questions.

In your view, has the Office of Surface Mining fought hard enough to—within the councils of the Administration, particularly with the Office of Management and Budget—to make more abandoned mine land funds available for the States?

Mr. BIELICKI. No, sir. In my opinion, they have not.

Senator SASSER. Well, I agree with you. Have they worked with the States to help speed up the obligation rates?

In other words, are they encouraging the States to use more of the money effectively and efficiently, and obligate more of it?

Mr. BIELICKI. I would have to say no, sir, Mr. Chairman. I think that playing the obligation-rate game is a detriment to the effectiveness of the program.

If you have a million dollars to obligate for a specific project, and you receive a low bid on that project of, say, $500,000, then certainly nothing erroneous has occurred, nothing detrimental to the program has occurred. The reclamation work is getting done for a lesser amount. But your obligation rate is only 50 percent instead of 100 percent.

By concentrating solely on obligation rates, and dollars obligated, it tends to drive program managers towards making the projects as costly as they possibly can.

Where is the incentive to do efficient economic reclamation work when the only thing that is being considered is how many dollars you have obligated, not how many problems you have remedied, not how effectively and efficiently you have done the work, simply dollars obligated? And I do not think OSM is cognizant of that fact, and I do not think that they have assisted us in that area at all.

Senator SASSER. One final question. Has OSM administered the program in such a way as to insure that obligation rate will be low, in your view?

Mr. BIELICKI. Could you repeat that question, sir.

Senator SASSER. Well, has OSM been administering the program in such a way as to insure that the obligation rate of the States will be low? There have been some allegations that perhaps OSM wants low-obligation rates, so that they will not be forced to go back and take more funds out of the trust fund.

Mr. BIELICKI. Well, that is a very difficult question since I have no direct knowledge of OSM's intentions in that regard. I know that frequently we receive grant approval not within the 90 days expected, but many times, within a significantly longer period of time. That affects our obligation rate significantly. For example, if we request our 1988 grant appropriation now, we would expect to receive that grant within 3 months, so we can get to work on those projects as soon as that grant was approved.

But the clock starts running on our 1988 grant obligation at the start of the Federal fiscal year, even though we have not yet received approval. So by October 1st, we are already being timed for our obligation rate on our 1988 grant.

The longer the award of the grant is delayed, within that Federal fiscal year, the less time states have to address those problems in that fiscal year. Therefore, by the end of the fiscal year your obligation rate is significantly lower than it should be.

Senator SASSER. Thank you. Senator Heinz.

Senator HEINZ. Mr. Chairman, thank you very much, and I do commend you, Mr. Chairman, on holding this hearing.

I want to ask Mr. Burnett a question which has to do with the way we keep an eye on grant monies. We all know that the RAMP program is not administered by the Department of the Interior. It is ultimately out of the Department of Agriculture—the Soil Conservation Service.

How can you, or for that matter, we, be certain that the RAMP monies go to the highest priority needs and sites?

Mr. BURNETT. The Soil Conservation, Senator, has technicians in every county in the United States, as far as I am concerned, or have had since the great dust storms, and they are experienced.

We have soil scientists that work with them, and they, when a site comes up to be bid on, to be let for a contract to be reclaimed, our soil scientist goes in there and evaluates it, and makes an estimate on what the cost price is going to be, and so far I think it has been one of the most cost-efficient projects that the United States has ever undertook.

Senator HEINZ. Well, whether it is cost-efficient, or not, do they rate the sites in some objective basis as to need as well as rate them in terms of how the greatest need can be accommodated with the least amount of money?

Mr. BURNETT. Yes, they rate them. It is according to the health hazard and to the life—danger to the people living in or near these.

Senator HEINZ. Is there therefore a national priority list for RAMP?

Mr. BURNETT. Not as such.

Senator HEINZ. Now why is that? If they do rate the sites, why don't they rank them?

Mr. BURNETT. That I do not know. They leave it—as far as Tennessee, and as far as the Soil Conservation—they have been and still do leave it to the technicians, or the district conservationists in these counties, and through their soil scientists they pick the priorities.

Senator HEINZ. One of the responsibilities that, as you know, we have, as Members of Congress, is oversight of programs, and it would seem to me reasonable that there might be a way of establishing, objectively, the extent to which the technicians out there in the field are, or are not, making good decisions.

On Monday of this week, a lot of technicians on Wall Street were making decisions with the result that the market went down 508 points. Although we could not see, exactly, what had kicked it all off, once they turned off the computers, and therefore, some of the technicians, we got a lot more stability in the market, and even got some better decisions made, such that the stock market went up.

So just because technicians are making decisions, I am not reassured by that given the experience of this week, and so I would really like to get your judgment on how, if you were us, you would make a judgment as to the extent to which this system that is out there—whether it is technicians, or black boxes—was making good decisions.

And the only way I would know how to do that, is to have objective criterias of need, rank things in terms of need, and the ability to address those health and safety issues, environmental issues—rank on the basis of cost efficiency, and compare those rankings with what has actually happened.

Isn't that perfectly reasonable?

Mr. BURNETT. That is reasonable, and I do not believe that the present law specifically lays that out. I think that when this new law, hopefully, is rewritten, and after 1992, that will be included along with many more of the things that should be updated.

Senator HEINZ. Are you a little frustrated by the fact that you cannot tell how well the RAMP program is being administered in other States?

Mr. BURNETT. Yes, I do, to a certain extent, but I am very closely, Senator, associated with, in my particular county—I have been on the Soil Conservation Board of Supervisors for—it will soon be 29 years—and I know, positive, what goes on in that county, but other States, no.

Senator HEINZ. Yes. I think that proves the point, that you may know very well what is going on exactly where you are.

Maybe you know what is going on in the next county—I suspect you probably do—but at a certain point you run out of information.

Let me turn to my constituent, Richard Bielicki, representing the Pennsylvania Department of Environmental Resources.

Mr. Bielicki, you have testified that Pennsylvania will have received some $500 million of AML funds over the life of the program, and yet the cost to reclaim all 4,800 high-priority sites in Pennsylvania stands at $2 billion, about four times as much as we have received.

And 75 percent, or more, of our sites will be unreclaimed, posing some very severe hazards to public health and safety, and I have detailed some of them in my opening statement, Mr. Chairman. The bottoms of public swimming pools falling in; entire basketball courts—fortunately, with no kids on them at the time—literally disappearing into the ground.

Those are some of the "horror stories" we have in our State, that had been unaddressed, and where human life and limb has been put very much at risk.

Let me ask you: if Title IV is to be continued beyond 1992, what changes, if any, should we consider?

Mr. BIELICKI. Well, sir, I like the program as it is now. If there were higher appropriations, I think that the program would be——

Senator HEINZ. I do not know of a single American testifying before Congress who has not asked, except for, if they are not from the Federal Government, for a higher appropriation.

Mr. BIELICKI. Yes, sir, you are right, and I apologize for that, but I really do feel that we are doing a good job. I think that most of the States have a true commitment to removing the health and safety hazards that exist from prior mining.

I think the industry is finally seeing the point, too. I think industry is starting to get behind us. We are reclaiming a lot of problems that are taking a lot of heat off of them.

Senator HEINZ. I understand that, but other than more money, what changes in the program should we consider, if any? Or is the program okay as it is, just to extend it, and fight and win the annual appropriations battle? Is that what you are saying?

Mr. BIELICKI. Well, that is one of the most important things, but I think a continuing change in the direction and commitment to the Title IV program by OSM is needed.

Mr. Christensen is making some inroads in that regard. However, a lot more needs to be done. The Title IV program is, according to everybody within OSM, the carrot. They do not see it as a valid program that stands on its own.

They do not see it as a program that has its own people and its own commitments, and its own needs. They see it for only one reason: as a carrot for the Title V Program.

To our point of view, the people within the Title IV program, we resent that. We really feel that there is much more to our program than just a pork barrel doling of dollars to State governments. We feel that there is a definite need for the work that we do, and that we are making the best use of these dollars that is possible at this time.

I would think that if we could have a change in attitude, a continuing of the change in OSM's attitude, direction and commitment to the program, that the Act, as it is, really goes a long way towards removing the problems. I cannot see any real need for any significant changes. Except that section 405(c) of SMCRA, requiring a Title 5 Program, should be stricken from the act.

Senator HEINZ. Let me ask about the national inventory of abandoned mine hazards, AML hazards. Can we use that inventory to base the discretionary funds on, or have the primacy States not done an adequate job with the databases?

Mr. BIELICKI. Most primacy States have done a fairly substantial job of documenting all of their Priority 1 and 2 hazards that exist right now. I think that the inventory as it exists is a fairly good measure of the magnitude of the problem, but I do think that the inventory is very, very dynamic and the inventory needs to remain opened in all aspects for the life of the program.

OSM's intention is to close the inventory for allocation purposes as of July 31st of this year.

Senator HEINZ. Now, if they were allowed to do that why would that be a problem?

Mr. BIELICKI. The only incentive that the States have to make the inventory as dynamic a tool as they possibly can is because it effects the funding that that State would receive. Once the tie to allocation and apportionment is no longer there, once it is locked in place, there will be no incentives at all for the States to maintain that kind of an inventory, because it takes a significant commitment in resources in order to make the inventory a dynamic tool.

Senator HEINZ. There are two things I guess that happen to the inventory. One is that new sites as they are found are added to it and, obviously, that is an incentive for States to go out and find them if their funding is based on that.

On the other hand, there are cleanups that take place and they are accounted for in some way. What is the incentive or disincentive on cleanups?

Mr. BIELICKI. As far as remedying the problems, the States are obligated at the closeout of their grant to submit documents that show what their program has done within that fiscal year grant in order to alleviate those specific problems. However, that is only a small portion of the sites that are affected within any State's inventory during any one fiscal year because frequently agencies such as the Soil Conservation Service will do work on sites, the Office of Surface Mining themselves will do work on specific sites, the industry will come in and reclaim and remine many, many other sites.

In fact, the industry in Pennsylvania does an excellent job and they reclaim about as many acres of surface mines a year as we do. Those types of documentations of cleanup work will not be addressed in the inventory that is closed as of July 31st.

Senator HEINZ. You mentioned remining. Could you update the Committee and me very briefly on the remining activities in Pennsylvania and how close those activities are towards reclaiming our abandoned lands and the extent to which anything that OSMRE is doing is relevant to this?

Mr. BIELICKI. The industry is doing a very credible job. As I said, they are reclaiming approximately 2,000 acres a year of land that had been previously mined. Pennsylvania has started a program that considers site specific water quality discharges that exist prior to a mining operator's filing of a permit application. We will not hold the new permittee responsible for post mining discharges that do not meet effluent standards if they are equal to or better than the pre-mining discharges that existed.

Pennsylvania pioneered that concept and worked very hard with the Environmental Protection Agency and the Office of Surface Mining in getting changes made to the Clean Water Act. That program is being implemented today. There are some problems with making full program determinations area-wide, but it is in effect and it is an enticement to industry and it is being successfully utilized by much of the industry in Pennsylvania right now.

We have some other programs that we operate under the contracting methodology where we try to entice industry to come in and do reclamation work under contract to us. Just briefly, one of them is Act 181 of 1984 whereby we directly negotiate with licensed coal mine operators within the Commonwealth to reclaim adjacent bond forfeited lands that are nearby their permanent operations.

We have also worked on a concept that we have adopted from Ohio called "no-cost contracting". It is used as an incentive to industry to do reclamation work on areas adjacent to their permitted operations. We do what is called reclamation in lieu of civil penalty where instead of paying a civil penalty to us under the Surface Mine Conservation and Reclamation Act of Pennsylvania, an operator would do reclamation work for us instead.

And we have made a significant effort to involve the industry in all of our public bid contracting programs. A few years back it was a rarity if we received a bid from industry on one of our reclamation jobs. Today, two-thirds of our jobs are being awarded to the coal mine industry for surface reclamation in Pennsylvania.

So we are working very, very closely with the industry to develop the program as much as we can.

Senator HEINZ. Very well, Mr. Bielicki.

Mr. Kastl, Senator Sasser, who will be back in a moment, has asked me to ask you to proceed. He apologizes he has had to step away, but he will be back momentarily. Would you please proceed.

Mr. KASTL. Thank you. I will try to summarize this for purposes of brevity.

I am Mike Kastl, Director of the Oklahoma AML program. If I do repeat some of these figures that Mr. Bielicki and others have

mentioned I apologize, but I think they are important and need to be brought out.

I notice this morning OSM Director Christensen talked about a 10-year anniversary. Actually, the anniversary for States is really about a 5-year anniversary because we have only been operating—most States got approved—the majority of the States got approved in 1982, so you have got to realize that it takes a while to gear up. We are there and we are reclaiming, I think, are improving the health and safety and general welfare from the AML hazards.

One of the main points that I would like to discuss this morning is the obligation rate. I noticed that Chairman Sasser referred to that several times this morning. As you realize, in fiscal year 1985 Congress appropriated $236 million to the State programs. That was our highest level. States had geared up, staffed up, and since then, of course, the cuts have continued to fall.

I believe that the percentage of obligation rates should be tied to that third year in that construction grant. I am not so sure that everybody understands that a State has 3 years—Mr. Bielicki referred to that awhile ago—to utilize those funds. And when Congress asks for quarterly reports from the Office of Surface Mining, if a State, for example, like Wyoming, who gets a pretty large amount of AML fund within a construction grant, gets say a $30 million grant, then Congress asks for a quarterly report, that is going to make that unobligated rate look very, very low. They have only had it 3 or 4 months.

So you need to go beyond just that one line or that one figure. You need to look at it in its entirety and realize, for example, in that State of Wyoming that they have got 3 years to spend that $30 million. That is not what you see when the OSM folks report that to you on a quarterly basis. So you have got to break that down and understand that the obligation rates are going to be lower at times.

We think we are doing a good job. It is up around 70 to 75 percent of obligation rates, but you are never going to have 100 percent. That is asking the impossible. Now, in Oklahoma, we have $5 or $6 million worth just designed on the shelf ready to go if we had the construction dollars. I think if you looked at the tables, naturally, we only get about a million, or have been getting less than $1 million of construction money.

I think another figure that is real important is the $400 million of unappropriated dollars that is in the Trust Fund. I do mention the RAMP Program. I believe that with that amount of money—420 I believe is what they are saying at the end of this calendar year—that the States can get increased levels of dollars, and it was encouraging to hear Senator Sasser mention that there will be substantial appropriations he feels this next year. I was glad to hear that.

But at the same time, I believe RAMP could get an increase. You know, there is that many dollars there. I think it would be devastating if they got the full 20 percent. That would devastate the State programs. But I think there is room for an increase in RAMP. I think there is room for an increase in monies to State AML programs. That is obvious listening to the testimony this morning.

Of course, the real benefactor is going to be the general public. I would hate to see another Midland, Texas because that is what we are looking at. We are looking at another Jessica in the State of Pennsylvania or in the State of Oklahoma in these open shafts and holes. It is just waiting to happen and it is not doing any good for that money to be setting unappropriated, 400 and some odd million when those kinds of things exist out here in these States.

By the way, we do work real closely with the Soil Conservation Districts. They help select our projects in Oklahoma and do the inspection, so we in a lot of States work very closely with the RAMP folks in reclaiming their AML sites.

Another issue is the Internal Revenue Service [IRS] problem. As you are well aware, in the State of Ohio there was a case that was brought against a landowner. Now, you have got to realize that this is a State funded AML program, not a federally funded AML Program in which IRS was trying to tax an individual. That was the State cost share, as I mentioned, and it is hard to compare it to the other State operated programs.

There has been mention of using Section 126 of the IRS code to alleviate that problem. I believe that is the wrong answer. I know there are about 5 or 6 States that have already asked the Secretary of Agriculture to utilize that 126 option, but I believe the better route, if you will, is to look at—I guess it would be House Bill 630 or Senate Bill 563, or something similar—it may not have to be that particular legislation that is pending now—but something which Congress could pass that would give the Internal Revenue Service a clear direction on the limits that they can take on taxing these AML grants.

If that happens you might as well forget about RAMP. You might as well forget about particularly State programs—maybe not RAMP—but the State operated AML programs, you could just forget about it.

One other thing is the minimum base program. There are some States—there are about four States presently, and possible others after the inventory update comes in, there may be more, where we have a very low State share due to low coal production, several reasons, where we just do not have the dollars coming in, if you will, to reclaim the Priority 1s and 2s. For example, I guess the inventory in Oklahoma would show about $140 million worth of problems and we have expended a little over $7 million to date. That just will not get it done between now and 1992.

With those statements, that is all I have.

Senator SASSER. Let me ask you this, Mr. Kastl, what has been your experience with the Office of Surface Mining with regard to their contentions that more Abandoned Mine Land Funds should not be appropriated until State obligation rates have been increased?

Mr. KASTL. Well, as I mentioned a minute ago, the rate of obligations has gone up considerably in just the last year. Mr. Bielicki mentioned 70 percent. It is 70 and may even be higher because we have just gone through another construction season. It was 65 before that.

So we are spending those dollars. You will never get it down to 100 percent. That just cannot happen and still operate a program.

So I think it is improving and why Director Christensen comes before the Congress and says that we are not, and then, of course you mentioned this morning, and therefore we only get 150 million, there is 400 million sitting. I think we need to turn that around.

I think we have got lots of problems and near tragedies. There are tragedies just waiting to happen out there and we need to get that funding up and I believe the obligation rate—let's just say one State has a low obligation rate, I do not believe that one bad apple—and I do not know who that is, I do not believe there is a 30 percent State out there—but if that is true, then I do not think one bad apple should spoil the whole basket.

Senator SASSER. Well, I agree with you. Now, let me ask you this. Are you in favor of extending the current Surface Mining Reclamation Control Act when it expires in 1992?

Mr. KASTL. Yes, sir.

Senator SASSER. All right. Gentleman, thank you very much for appearing here today. I want to express my particular appreciation to my longstanding friend of many years, Mr. L.H. Burnett, for his appearance here and for his testimony and for his enormous contributions to reclaiming this land in our State. Thank you.

Mr. BURNETT. Thank you, Senator.

Senator SASSER. Our last witness will be a witness from the Tennessee Valley Authority, and we look forward to his appearance here this morning.

Mr. Bollinger, we welcome you and would you identify your colleague there this morning for the purpose of the record, and we would be interested in getting your views. Mr. Jack Muncy, I see, with the TVA. If you would give your titles, that would be helpful to the court reporter.

TESTIMONY OF ROGER BOLLINGER, PROGRAM MANAGER, LAND RECLAMATION SMALL COAL OPERATOR ASSISTANCE PROGRAM, TENNESSEE VALLEY AUTHORITY,[19] ACCOMPANIED BY JACK MUNCY, PROJECT LEADER, ABANDONED NON-COAL MINERAL LANDS RECLAMATION

Mr. BOLLINGER. Thank you, Mr. Chairman. My name is Roger Bollinger and I am Program Manager of TVA's Land Reclamation Small Coal Operator Assistance Program. I have with me today Mr. Jack Muncy. Jack is our project leader for Abandoned Non-Coal Mineral Lands Reclamation work and he will present our brief statement along with a few slides.

Senator SASSER. Thank you. You may proceed, Mr. Muncy.

Mr. MUNCY. Thank you very much, Mr. Chairman.

Reclamation of abandoned lands is of vital concern to the Tennessee Valley Authority and the people of the region that we serve. We appreciate the opportunity to present our views today on this most timely subject.

Both coal and non-coal mineral mines impact the lands, waters and the people of the region. Today there are over 31,000 acres of abandoned coal mines that are in critical need of reclamation and

[19] See p. — for Mr. Bollinger's prepared statement.

about 16,000 acres of unreclaimed non-coal mineral lands in the Tennessee valley.

TVA has been working in mined land reclamation for over 40 years. We are here today to focus on reclamation activities we have underway in Tennessee's Copper Basin to illustrate how cost-effective techniques may be used to help alleviate the massive abandoned mined land problems still facing our Nation. This activity is a cooperative effort with Tennessee chemical company which voluntarily participates with TVA in both funding and conduct of the reclamation work.

For your information, the Copper Basin is considered to be the worst contiguous environmental problem related to mineral mining in the eastern United States. While over two-thirds of the once denuded 50 square mile area has been revegetated, over 11,000 acres remain in need of reclamation work.

I would like to briefly show you a few slides of some of our reclamation activities if I could.

The Copper Basin is a manmade biological desert. It is nestled in the tri-state area of Tennessee, Georgia and North Carolina. Here over 32,000 acres were denuded by half a century of crude copper smelting practices. This is a very recent slide showing you the remaining problem areas.

The area is drained by the Ocoee River. This is a very recent slide showing you the often times muddy coloration of the flow. The river and three downstream TVA reservoirs known as the Ocoee System and associated hydro-electric facilities have been plagued with severe sedimentation and water quality problems since the devastation began in the Copper Basin in the 1850s.

Our reclamation approach is focusing on establishing maintenance-free vegetative cover to control erosion and to restore watershed protection benefits. We have two major categories of lands in the Basin which are in need of work. One is partially vegetated lands and the other one is completely denuded lands.

For example, this is a partially vegetated land of loblolly pine that was likely established about 1975. The trees are not doing very well at all which you can see by their yellowish coloration. There is no ground cover.

Using a helicopter, we aerially seeded and fertilized this plantation—about 400 acres—in March of 1985. After only 3 months you can see the results that we have achieved. We have established ground cover and the trees have already responded nicely to the fertilization. After about one year you can see that we are well on the way towards a successful vegetative cover. This work cost about $200 per acre.

Moving to what we call the denuded lands category, this 210 acres area was treated in the spring of 1986. From all reports this area had been abandoned and completely denuded for well over 100 years. Some of the practices that we are utilizing in revegetating these lands, is sub-soiling. This is where we are taking a bulldozer with ripper teeth attached and plowing the ground about 2 feet deep to loosen the weathered soil. This allows for increased rainfall infiltration and improves establishment of grasses and tree cover. We are also using a helicopter to aerially seed and fertilize such areas because of their inaccessibility.

We are hand-planting trees and shrubs with fertilizer tablets. On a site like I just showed you, this is the type of results that we are getting. Even with the added cost of sub-soiling and tree planting, and considering that 1986 was the driest year on record, we are very pleased with our results which cost about $800 per acre.

As you know, abandoned coal mine sites may cause acid mine drainage problems. To help alleviate these situations across the Valley, we are refining the use of constructed wetlands. These shallow impoundments planted to selected aquatic plants have the capability of naturally moderating acid waters and significantly reducing iron and manganese concentrations. We are also using these below some of TVA's ash pond disposal sites at some of our coal-fired generating facilities, along with constructing three of these in municipal waste treatment demonstrations in West Kentucky.

We are also using these cost-effective techniques in reclaiming other sites throughout the Tennessee Valley Watershed. This is an abandoned mica and feldspar site in western North Carolina. I took this picture in March of 1981. This picture was taken in 1986, 5 years after our reclamation work.

We also have reclaimed some abandoned coal mine sites impacting the upper Bear Creek Reservoir in northwest Alabama. This is before reclamation in April of 1982, and after reclamation in March of 1985.

That is all of the slides I have to share with you. I would like to conclude in saying that TVA supports the reclamation of abandoned mines and in view of the magnitude of the job required to resolve the national needs we recommend that the abandoned mine land fee and associated program under Title IV provisions of Public Law 95-87 be extended. We also suggest that the AML fee be placed into an interest bearing account whereby the accrued interest could be applied toward future reclamation. Only when these derelict lands are properly reclaimed and productivity is restored will they provide beneficial service to society.

Thank you very much, Mr. Chairman.

Senator SASSER. Thank you. Do you have a statement to make, Mr. Bollinger?

Mr. BOLLINGER. No, sir. That concludes our statement.

Senator SASSER. Mr. Muncy, refresh my recollection about what happened around Ducktown. I used to know that—in fact, I have been through that area many, many times. It was copper smelting, was it not?

Mr. MUNCY. Yes. Copper mining started in 1850 and with the crude practices they were using to extract the copper from the ore, it was known as open-pit roasting. In this process they actually cleared the timber over a 50 square mile area to supply fuels for these open-pit smelters and they would in essence lay a row of timber and then ore—timber and ore and set this on fire. This emitted SO-2 gas, which is the first classical example of acid rain in the eastern United States.

The Basin is naturally in a bowl-shaped area and the topography of the mountains trapped these fumes. It has been said that at certain times they would have to put bells on their mules because the fumes were so thick. So the fumes killed the vegetative cover, they cut the timber for the fuel, and we have an environmental problem

that we are trying to deal with because it is impacting our people in the Valley, our facilities and our water quality. The Ocoee River is also nationally known for its white water rafting.

Senator SASSER. Yes, I have white water rafted that river.

Mr. MUNCY. Yes, sir.

Senator SASSER. When did they stop smelting copper there in the area.

Mr. MUNCY. Well, in 1907 they constructed the first chamber in which they started capturing the SO–2 gas, and this became the major product of the company in contrast to the copper. The company started selling sulfuric acid, which is their major product today. So, the fumes in the early turn of the century were under control. However, the devastation was still there and TVA became heavily involved when it was enacted in 1933 toward identifying measures toward revegetating these lands.

Senator SASSER. So, do I understand you correctly to say that the devastation there was largely caused prior to 1907?

Mr. MUNCY. Yes, sir.

Senator SASSER. And we have still got this denuded area around there of Ducktown?

Mr. MUNCY. Yes, sir. As I pointed out, there are about 32,000 acres that were originally impacted and we still have about one-third, or 11,000 acres that we hope to revegetate for watershed protection benefits.

Senator SASSER. Was there any particular company that was the chief offender in the latter part of the 19th century there?

Mr. MUNCY. There were numerous companies throughout the Copper Basin that helped create the problem. However, it is kind of hard to point the finger at any one company and say this is your responsibility. In the 1930s it was called Tennessee Copper Company. It was sold to City Services in 1963. And in 1982 Tennessee Chemical Company purchased the facilities. I might point out that Tennessee Chemical Company has what I would call a very good faith effort toward revegetating these lands and we are working with them on a cost-share basis to treat these lands.

Senator SASSER. I remember when I was in law school some of the classic cases involving real property rights and creating nuisances arose out of those copper operations around Ducktown and through that area.

Mr. MUNCY. Yes, sir. There was actually a case in 1907—excuse me.

Senator SASSER. Many of them went to the Supreme Court of the United States.

Mr. MUNCY. There was one that went to the Supreme Court in 1907 through action by the attorney general of the State of Georgia.

Senator SASSER. Yes. Well, gentlemen, thank you very much for appearing here and giving us the benefit of TVA's views. We appreciate it. Thank you.

Mr. MUNCY. Thank you.

Senator SASSER. We will hold the record open for 15 days for additional statements that interested parties might wish to make, and I now declare these hearings closed.

[Whereupon, at 12:35 p.m., the Subcommittee adjourned subject to the call of the Chair.]

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

Testimony of Jed Christensen
Director
Office of Surface Mining
Reclamation and Enforcement
U.S. Department of the Interior
before the
Subcommittee on Government Efficiency, Federalism
and the District of Columbia
Committee on Governmental Affairs
United States Senate
October 23, 1987

Mr. Chairman and Members of the Subcommittee:

It is particularly appropriate as we pass the tenth anniversary of the Surface Mining Control and Reclamation Act (SMCRA) that we discuss the Abandoned Mine Land (AML) program, which is one of the two keystones of the Act. In enacting SMCRA, Congress established a process for regulating current coal mining and assuring proper reclamation after mining is completed. It also established the Abandoned Mine Land program as a way of dealing with damage caused by past coal mining activities conducted prior to the enactment of SMCRA.

The purpose of my testimony is to provide you and the Subcommittee with the Office of Surface Mining Reclamation and Enforcement's (OSMRE) view on the status and achievements of the AML program. I will specifically address the status of the AML Fund, our current approaches to AML fee collection, implementation of the Federal Reclamation Program, the Rural Abandoned Mine Program, water supply systems policy, and other issues in which you expressed interest.

TEN-YEAR REPORT

I am pleased to provide the Subcommittee with a report, prepared by the Association of State AML programs, which describes ten years of accomplishment. The report includes a description of the AML program and expenditures and the reclamation accomplishments on a state by state basis since passage of SMCRA. A summary of the accomplishments achieved through Federal and State reclamation programs reveals that nearly 66,000 acres of land have been reclaimed on more than 6,100 abandoned mine sites.

STATUS OF ABANDONED MINE LAND FUND

The first State AML grants were not awarded until FY 1981. By the end of FY 1982, 15 States had achieved "primacy" and began receiving funding for AML grants. State obligations climbed steadily from approximately $60 million in FY 1983 to $210 million in FY 1986. There are currently 23 primacy States eligible for funding of State AML programs.

Through February 1987, $1.87 billion have been collected and deposited in the AML Fund. The AML Fund accumulated rapidly between 1977 and 1982 while States were developing their primacy programs. By FY 1982, the unappropriated balance of the Fund reached $513 million. With State programs in place, the unappropriated balance of the AML Fund dipped after 1982 and it is projected to be $422 million by the end of this fiscal year.

Utilizing Department of Energy data, OSMRE projects that approximately $3 billion in fees will have been collected through 1992. The $3 billion will go a long way toward reclaiming AML sites that represent the most significant threat to public health and safety.

FEE COLLECTION AND AUDIT PROCESS

The balance in the AML Fund is dependent on quarterly payment of the AML fees by operators. We have carefully monitored fee collection rates over the last ten years. At present, the delinquency rate stands at under 5 percent. This low delinquency rate is primarily attributed to voluntary compliance by the majority of operators, supplemented by aggressive follow-up on delinquent and non-respondent payers and an on-going audit program to assure that the maximum fee owed is being paid by the operator or permittee.

We have almost doubled our OSMRE audit staff in the last two fiscal years, bringing in more highly qualified personnel, and significantly increasing not only the professionalism of our auditors but also improving the techniques by which they work. For example, using data obtained from the Energy Information Administration of the Department of Energy and from State severance tax records, we are comparing production records against production on which AML fees are paid. Where discrepancies are found, the companies involved are targeted for audit. Additionally, through the efforts of the Solicitor's Office, we have recovered $13-14 million in delinquent AML fees over the last three years through litigation.

ALLOCATION PROCESS FOR STATE AML RECLAMATION GRANTS

After consideration of numerous options, OSMRE implemented a formula in FY 1986 for allocating the annual appropriation for State grants. A State's annual allocation currently consists of the State share, based on its balance of monies in the Fund, and a share of the Secretary's discretionary grant monies. The State share is one-half of the monies collected from coal production in the State. The Secretary's discretionary grant funds are apportioned based on an equal weighting of high priority problem areas on the National AML Inventory and historic coal production in each State.

All States have had an opportunity over the past two years to update their information on high priority sites in the National AML Inventory. All updates certified in FY 1986 were used in the apportionment of the Secretary's discretionary fund for the FY 1987 grants.

Inventory updates approved in FY 1987 will be used to distribute discretionary monies in FY 1988 and in future years. OSMRE believes this formula will provide the States with predictable funding levels allowing for better planning and more stable management of their reclamation programs.

NATIONAL INVENTORY

The National AML Inventory was briefly mentioned in my comments on the allocation formula. The Secretary's discretionary funds are allocated to the States, in part, based on the National Inventory data base. This data base is also used by the States to plan and develop their annual reclamation programs and grant application packages.

The National Inventory was originally created in an attempt to assess all AML problems across the Nation. Later, OSMRE redirected the scope of the inventory to focus only on priority 1 and 2 sites, those that represent threats to the public health and safety. The current inventory data base contains approximately 6,000 priority 1 and 2 problem areas. At the request of States, OSMRE agreed to an "open season" to allow States to update their inventory data base. OSMRE also developed procedures to ensure that updates from 34 States and Tribes were evaluated consistently. Although the quality and consistency of the inventory data have been greatly improved, the data cannot be considered as a comprehensive cataloguing of all AML problems; it can, however, be considered a good indication of the universe of high priority AML problems. By December 1, 1987, the current National Inventory update should be completed. Problem areas and their reclamation cost estimates will be established, which will serve as the inventory base for purposes of fund apportionment. After December 1, 1987, the National Inventory will continue to be updated and the data refined and improved.

In order to assure that all States which have coal AML problems will be able to maintain a sound AML program, two new initiatives are proposed for the AML program.

MINIMUM-LEVEL PROGRAM

The first initiative is a proposal to establish a minimum-level AML program for those States whose annual allocation is very small but who continue to have high priority AML problems. Four States--Arkansas, Iowa, Kansas and Oklahoma--are now eligible and could receive additional Secretary's discretionary funds providing overall levels up to $1.5 million per year to continue viable AML programs. Once minimum-level program States have completed their high-priority projects, annual funding would be reduced to State-share money only. This proposal was submitted to Congress for review and we are awaiting a response from Congress so that it can be implemented during FY 1988.

STATE-SHARE SET ASIDE

The second initiative involves the establishment of the State set-aside program under Public Law 100-34. This Public Law, which was signed by the President on May 7, 1987, amended section 402(g) of the Surface Mining Control and Reclamation Act (SMCRA). The amendment allows the States to establish trust funds into which a State could deposit up to 10 percent of its appropriated annual State-share grant funds. Once placed in their trust fund, these funds, as well as any interest earned, can be expended by the State to accomplish reclamation after August 3, 1992. The States with AML programs have been notified by OSMRE of this amendment and how they may obtain the State set-aside funds.

FEDERAL RECLAMATION PROGRAM

I would like to briefly discuss the status of the Federal reclamation program, which comprises high-priority and emergency projects.

The Federal high-priority project effort has evolved since its inception in 1979 and the approval of State reclamation programs in 1982. Initially, OSMRE contracted for Federal projects directly and used State cooperative agreements to reclaim high-priority AML problems throughout the Nation. With the approval of State reclamation programs, OSMRE has substantially curtailed this Federal effort except for the reclamation of high-priority sites in States not having primacy and on Tribal lands. In total, OSMRE has spent approximately $106.5 million to reclaim 417 sites in 31 States and 3 Tribal jurisdictions.

Of the total $106.5 million spent on reclaiming high-priority problems under the Federal program, $61.7 million (256 sites) was spent through cooperative agreements with the States. This process provided States with design and construction funds to address priority 1 and 2 problems, while the States prepared their State reclamation program submissions, and enabled the States to develop the expertise and capability to administer their own construction programs.

Both of these Federal high-priority efforts are essentially completed, except for $3.9 million in FY 1987 to address priority 1 and 2 sites in States not having primacy and on Tribal lands. With the Tribes now gaining access to the AML funds, OSMRE activities in this area will decrease significantly in FY 1988.

Between FY 1978 and FY 1987, $97.59 million has been spent on Federal emergency projects. It became apparent by 1985 that requests for emergency funds were expanding and the projects often did not meet the intended definition of "emergencies." At the rate the program was growing, there would have been very little money left in the Secretary's discretionary fund to allocate to the States for their reclamation programs.

To ensure that emergency funds were properly targeted, OSMRE undertook two initiatives. First, it issued new guidelines that clearly differentiated between the type of AML activity necessary to address an immediate emergency situation and reclamation work to address the non-emergency portion of a problem. The guidelines call for speedy and efficient abatement of an emergency situation, while leaving the reclamation of the site to the normal State grant process.

Second, in its allocation formula, OSMRE ensured that funds expended on emergency projects in each State are included in the apportioned share of Secretary's discretionary funding each State receives. This effectively removed the incentive for States to submit non-emergency projects in order to secure additional Federal funding.

OSMRE continues to encourage the States to assume primary responsibility for all phases of the AML program including emergencies. Interest by the States in assuming responsibility for the emergency program continues to increase. To date, Arkansas, Illinois, and Montana have assumed the management of their emergency programs. Virginia has formally requested that responsibility, and I have been informed that Kansas, New Mexico, and West Virginia are strongly considering requesting the authority in the near future.

RURAL ABANDONED MINE PROGRAM

I would like now to direct my comments to the Rural Abandoned Mine Program (RAMP). Since 1982, it has been OSMRE's position that no new RAMP projects should be funded through the Department of Agriculture's Soil Conservation Service. It has been and continues to be our position that rural AML projects should be funded directly through and in consultation with the State reclamation agency. As a result, grant funds would be used more efficiently and effectively and administrative costs would be reduced. This is consistent with the Administration's policy to give States the lead in carrying out reclamation projects.

SUBSIDENCE INSURANCE PROGRAMS

Let me briefly describe the progress of subsidence insurance programs since Title IV of SMCRA was amended to allow grants to the States for the development of subsidence insurance.

OSMRE published regulations in February 1986 implementing the amendment to Title IV that authorized the expenditure of AML funds for subsidence insurance programs. Since that time, $8.7 million has been awarded to the States of Colorado, Indiana, Kentucky, Ohio, and Wyoming to establish self-sustaining, actuarially-sound programs to insure private property against damage caused by land subsidence resulting from underground coal mining.

WATER SUPPLY SYSTEMS POLICY

I know you are particularly interested in our policy on water supply systems work under the AML program.

Congress clearly identified projects which would protect, repair, replace, construct, or enhance public facilities, including water supply systems, as a priority 5 under Section 403 of SMCRA. Congress recognized that in cases where a water supply system was affected or damaged by impacts associated with abandoned mine lands, there can be health and safety problems to the users of the water supply system.

In recognition of the need to address the impacts of coal mining on water quality, on May 8, 1987, I issued additional policy guidelines regarding water supply system projects.

In order for a water supply system to be elevated from priority 5 to a priority 2 project, two conditions must be satisfied. First, the water supply system must be significantly affected by the past coal mining practices. Secondly, the condition of the water supply system must pose a threat to the health and safety of the general public. If these conditions can be established, a State may request AML funds to provide for an alternative water supply. I would note, however, that OSMRE reviews these requests very carefully to ensure that only work necessary to eliminate the health and safety threat is approved.

POTENTIAL TAX LIABILITY FOR RECLAMATION WORK

Another issue which is of concern to OSMRE is the potential problem that has been created by a recent ruling of the Internal Revenue Service (IRS). This IRS Ohio District Office decision concerns the potential Federal tax liability of private citizens receiving grants for reclamation work performed on private lands. The cloud created by this tax liability issue has already caused concern in a number of States. Legislation to provide exemptions from Federal taxation to landowners who receive payments or economic benefit received from the Abandoned Mine Reclamation fund has been introduced in both Houses of Congress.

REMINING

Over the past few years, I have supported the need to encourage private initiatives to maximize correction of abandoned mine sites. An area that has the greatest potential is remining of AML sites by the private sector. A recent amendment to the Clean Water Act (P.L. 100-4) is a very significant accomplishment in this regard. The amendment will encourage the coal industry to re-mine and reclaim in areas previously mined. In addition, the obvious benefit is that many abandoned mine lands will be reclaimed without the expenditure of AML grant funds.

OSMRE considers removing any regulatory impediments to remining a very high priority. Last year a report by OSMRE reviewing all facets of

remining was completed. Public meetings were held to receive comments and recommendations for implementing the report's initiatives. I followed up with two letters to the States and other participants outlining OSMRE's position on those initiatives and recommendations. These letters explained the regulatory mechanisms currently available to encourage remining.

Some of those initiatives include topsoil substitution where no soil exists, variances to revegetation standards to allow a ground cover similar to that which existed before disturbance, and a reduction of approximate original contour requirements where the regulatory authority finds that insufficient spoil exists.

We are also in the process of examining possible amendments to SMCRA that might provide additional incentives for remining.

Mr. Chairman, significant progress has been made under the AML program over the last 10 years. We are dedicated to continuing and extending that progress in the years to come. That completes my prepared testimony. I will be pleased to answer questions.

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

DEC 28 1987

In Reply
Refer To:
1030
LLG-2

Honorable Jim Sasser
Chairman, Subcommittee on Government
Efficiency, Federalism, and the
District of Columbia
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Enclosed for your information are responses to the questions raised in your letter of October 28, 1987, following the Subcommittee's hearing on the Office of Surface Mining Reclamation and Enforcement's Abandoned Mine Land Program.

Thank you for the opportunity to provide these responses to the Subcommittee.

Sincerely,

Jed D. Christensen

Director

Enclosures

QUESTION 1

It is my understanding that the Office of Surface Mining formed a task force to evaluate the use of cost-benefit analysis in AML project selection. Will this analysis include a value for saving a human life? How will the analysis be implemented?

ANSWER:

The National Academy of Sciences did not recommend that those projects which pose a threat to the public health and safety be evaluated through a cost/benefit methodology. OSMRE did form a task force to study the feasibility of using cost/benefit methodology for selection among lower priority projects (those that do not pose a threat to the public health or safety) in response to a recommendation from the National Academy of Sciences. Therefore, the study will not include the task of analysis of the value of saving human life since it is not dealing with projects that threaten human life.

QUESTION 2

It is apparent that the current AML Fund will not be sufficient to address water projects, generally classified as Priority 3. How does the Office of Surface Mining intend to deal with loss of drinking water in coal field communities?

ANSWER:

Priority 3 projects are directed towards the restoration of land and water resources and the environment degraded by past coal mining practices. Priority 5 projects are directed towards the repair, replacement, construction, or enhancement of public facilities, such as water supply systems, which have been adversely affected by past coal mining practices. Under specific circumstances loss of drinking water in coal field communities could be considered priority 1, 2 or 3 problems, but usually it would be a priority 5 situation.

OSMRE's directive on "Abandoned Mine Land Funding Policy for Water Supply Systems" specifies when water supply problems can be considered a high priority (priority 1 or 2) as well as when they are priority 5 situations. For water supply problems to be considered a high priority, there must be a finding that the water supply has been significantly affected by an abandoned mine land problem. If the water supply problems result from factors such as antiquated or deteriorated facilities, population increase, pollution from non-AML sources, and an AML problem is only a minor contributing factor, the water supply problem is considered a priority 5.

QUESTION 3

I understand that despite the strong recommendation of the Inspector General of the Department of the Interior that the Office of Surface Mining increase its audit staff, that this has not been done; and, indeed, the number of audits has declined even further. Is this correct? Has the Office of Surface Mining determined that audits should be concentrated on a few large operators rather than trying to audit the full range of operators, regardless of size?

ANSWER:

As the direct result of a recommendation by the Inspector General, the fee compliance audit function of OSMRE was consolidated under headquarters direct control at the start of fiscal year 1986. At that time, the authorized field staffing level was 44 FTE's. At the present time, the allocation is 56 FTE's.

OSMRE has undertaken an intensive program to improve the quality of the audit staff and the quality of audit work performed through intensive training and utilization of professional audit methods. For all calendar year 1986, 596 examinations were conducted resulting in billings of $2.7 million. To date in calendar year 1987, 178 examinations were completed resulting in an additional $3.3 million due to OSMRE.

While audits conducted reflect a decrease in gross numbers, the audit universe has actually increased since we are focusing on audits of larger companies responsible for a larger share of fee liability.

QUESTION 4

Can you provide the Subcommittee with any specific recommendations for ways in which the AML Fund might be "leveraged" and thereby made more effective?

ANSWER:

There are several current initiatives which enhance the AML program. For example:

o Grants for the development of subsidence insurance programs have resulted in the States implementing insurance programs that protect homeowners from the structural damages associated with mine subsidence.

o The recently enacted 10 percent set-aside legislation allows States to set aside funds in interest-bearing accounts to address AML problems after 1992. The interest earned in these accounts increases the funds available for actual reclamation work.

Other ideas include:

o OSMRE has embarked on an aggressive effort to encourage remining of abandoned mine lands. Many abandoned coal refuse piles have been determined to contain high percentages of coal (in some instances up to 50 percent) which could make them economically attractive to reprocess. As a part of the remining, an operator would be required to reclaim the land, but perhaps to

reduced standards. This would allow AML resources to be used in reclamation of other sites.

o OSMRE is also advising the States that there could be cases in which it would be worthwhile to recover coal found incidental to an abandoned mine land reclamation project. The coal recovered could generate receipts to be credited against the reclamation project to reduce the cost, deposited into the AML Fund, or deposited into the General Fund of the U.S. Treasury. By recovering a valuable resource, the potential for redisturbing the reclamation by future mining would also be reduced.

o OSMRE has developed a preliminary paper on acquisition/relocation of structures which presents some possible alternatives to full reclamation of certain abandoned mine land problem areas. The paper, which is currently under review by the States and OSMRE staff, proposes, among other things, that buyout may be a less costly option than reclamation. In some cases the reclamation cost is very high in comparison to the property value being protected, particularly if that value includes a structure that has been damaged. SMCRA currently authorizes the acquisition of property only if the acquisition is necessary for reclamation. An amendment to SMCRA would be required to allow acquisition in lieu of reclamation.

QUESTION 5

What does the Office of Surface Mining intend to do with Tennessee's "state share" monies that it has been holding since the state's loss of primacy more than three years ago?

ANSWER:

OSMRE continues to encourage Tennessee to regain regulatory primacy so that these State-share funds can be granted to the State as part of an approved State AML program.

Three years has past since the State relinquished primacy (October 1, 1984), therefore, the funds could be withdrawn and transferred to the Secretary's share, and Tennessee would continue to be considered a non-program State, like 13 other States that have AML problems but do not have AML programs.

To the extent that Congress appropriates funds to OSMRE's Federal Reclamation Program for reclamation work in non-program States, Tennessee's AML problems will be addressed along with AML problems in all non-program States.

To date, $15 million of AML reclamation has been funded in Tennessee. This represents a return of 83 percent of the $18 million in fees paid into the AML Fund by Tennessee coal operators.

QUESTION 6

Do you feel that the fee collection should be extended past 1992 in order to reclaim high priority AML sites?

ANSWER:

In preparation for developing a Departmental position on this issue, I initiated a data collection and analysis effort last August. This effort will address the numerous issues relevant to the decision. Our target date to complete this work is the summer of 1989.

QUESTION 7

Please provide the Subcommittee with documentation regarding all emergency requests that OSM has received in the past six years, and the disposition of each request.

ANSWER:

Emergency project requests are received by the 13 OSMRE Field Offices located near current coal mining and potential AML problems. Management of construction work for declared emergencies has been centralized for effectiveness and efficiency in our Field Operations Offices in Pittsburgh and Denver.

We do not routinely compile the information requested, which requires a review of case files in the field. In response to your question, this material is being compiled and will be forwarded to you as soon as it is available. We anticipate this effort to be completed by the end of January 1988.

QUESTION 8

Nearly $300 million was in the AML Fund at the start of this year. Nearly $400 million will be in the fund at the start of next year. At the same time, my state of Pennsylvania has 4,800 high priority problems with a reclamation cost of $2 billion. With needs of this magnitude, does the Office of Surface Mining anticipate an increased request for state grants in fiscal year 1989?

ANSWER:

At the present time, the Department is developing the FY 1989 budget request. No decision has yet been made with regard to the amount of funding to be requested for State grants in FY 1989.

QUESTION 9

With regard to discretionary funds, why is OSMRE using methods that would distort proper accounting of the need for these funds? Specifically, there appears to be a failure to use the National Inventory of AML hazards as a complete basis for allocating discretionary funds. Will OSMRE make better use of the National Inventory, including a regular update of the inventory, and if so, when?

ANSWER:

The current formula for distributing the Secretary's share of the AML Fund was adopted in FY 1986. The formula is based on an equal weighing of historical coal production and the estimated reclamation cost of priority 1 and 2 problems identified in the abandoned mine land inventory since both are indicative of need. The inventory is indicative of distribution of problems since it represents an actual count of known sites. OSMRE has been encouraging States to update their inventories for apportionment purposes and has made a continuous effort to assure consistent treatment of their submittals. As a result of this effort, the number of problems in their inventory has increased seven-fold in the past two years. However, historic coal production is also used and given equal weight since (1) the inventory is incomplete and constantly changing as new sites are identified or new problems occur; (2) the inventory does not contain priority three problems such as degraded streams and unreclaimed land; and (3) the distribution of prior coal production is a good indicator of the distribution of environmental problems covered by the production.

Upon completion of the inventory updates (December 1987), the inventory will remain fixed for future apportionment purposes thus providing the States stability and a better planning tool for their management of the AML program. However, the States may continue to update information in the inventory as new problems occur or are identified.

81-309 O - 88 - 3

QUESTION 10

Remining holds out great hope that some hazardous sites can be reclaimed by coal operators, who will themselves benefit from additional production. The Subcommittee understands that OSMRE is working with the Commonwealth of Pennsylvania on enhancing remining. Can you please update the Subcommittee on remining activities in Pennsylvania, and what further action the Congress might take to encourage such activities?

ANSWER:

The amendment of the Clean Water Act in February 1987 has resulted in increased interest and activity in remining. Abandoned mine areas with water quality problems can now be remined without the new operator assuming perpetual liability as long as he has the potential to improve the water quality and does not make it worse. Pennsylvania has been a forerunner in this area. Coordinating with the EPA, Pennsylvania amended its surface mining regulatory program to include a remining provision prior to the Clean Water Act change. There are presently 10 permitted remining operations in the State with an additional 30 permits in process. Pennsylvania and EPA have also been working together to develop an automated system to assist in making the "best professional judgment" determinations for effluent limitations for remining operations under the Clean Water Act.

Additionally, OSMRE, as a follow-up to a 1985 remining study, is considering legislative options that would encourage remining.

ENVIRONMENTAL POLICY INSTITUTE

TESTIMONY

OF

JAMES S. LYON
DIRECTOR
CITIZENS MINING PROJECT

BEFORE THE

SENATE SUBCOMMITTEE
ON
GOVERNMENT EFFICIENCY, FEDERALISM,
AND THE DISTRICT OF COLUMBIA

REGARDING THE

ABANDONED MIND LAND FUND

OCTOBER 23, 1987

218 D Street, S.E., Washington, D.C. 20003 (202) 544-2600

Mr. Chairman, I am James S. Lyon, Director of the Citizens Mining Project of the Environmental Policy Institute (EPI). EPI is a national nonprofit, non-partisan, public interest organization dedicated to influencing public policy regarding the impacts of energy, water, and agricultural development. In the 1970's, EPI was a leading national organization working for the passage of the federal Surface Mining Control and Reclamation Act (SMCRA). After Congress enacted this landmark legislation in 1977, EPI established its Citizens Mining Project to monitor the law's implementation and enforcement. In addition, the Project assists coalfield residents to better understand and exercise their rights under this law.

August 3rd marked the tenth anniversary of SMCRA's passage. With such an event comes heightened interest as to the direction and status of the law. Virtually everyone involved with this act will acknowledge the law's continued controversial nature. The controversy, however, almost always pertains itself to the Title V, regulatory and enforcement, side of the program. With the noted exception of state/federal funding allocation issues, the implementation of Title IV, the Abandoned Mine Land fund (AML),

has generated little national interest in comparison. This lack of controversy is justified, in part, by the exemplary way in which many states have carried out certain parts of this program. This progress was recently noted in the February 1987 report by the General Accounting Office (GAO/RCED-87-57) which generally gives passing grades to states on such issues as state financial control procedures, the propriety of project selection, and general project management. As positive as this report was, its limited scope of AML issues must be noted for the record. In reality, the AML program has some very large problems, which have been overlooked or brushed under the rug for ten years.

With respect for the Subcommittee's time, I would like to focus my statement on just two of the pressing problems. First, I would like to address the continued discrimination of AML related water projects from being funded. Second, OSM's timely response to AML emergencies is lacking.

For several years, states regulatory authorities and citizen groups have been raising the fact that OSM refuses to recognize AML related water problems as a priority one or two projects. Many of the most serious AML problems are water problems. Too many coalfield community water sources have been contaminated by the runoff or drainage of pre-act abandoned mines. These problems are not just restricted to private wells but to community water systems as well. Until recently, the only recourse virtually available to a state, community, or citizen

group to get AML water project funding was to obtain line item funding in the Congressional appropriations bill. As everyone knows, this is generally a very difficult, if not impossible, task. Aside from this process, the only other options available to a community to reclaim their water systems is by obtaining state funds or filing a successful civil action against the responsible company. Coalfield state budgets are extremely tight these days. Even more remote is the chance of legally tying water contamination to an coal operation over ten years old. In reality, without AML funding, these communities have just two options; to pay for a new water source/system themselves (including bottled water), or drink the contaminated water. Many of these communities are some of the poorest in this country (many on fixed incomes), which narrows the options even more.

Until recently, OSM's general defense for not funding water projects could be summed up in two points; 1) they are extremely expensive to fund and would drain limited AML resources from other needed projects; 2) many AML water projects cannot be abated at the source, so that reclamation involves either permanent treatment or the building of an alternative water system. OSM officials would quite often confidentially say to us that the Agency feared opening the water project allocation door to any project in that it would soon become "Pandora's box".

On May 5th, 1987 this general policy of not classifying any water project as a priority one or two was changed. For

whatever reason, OSM's new policy is to address AML water project priority eligibility on a case by case basis. The new OSM policy statement lays out criteria by which water projects are eligible for funding. On the surface, this is a commendable breakthrough for the agency. They have discarded their previous "head in the sand" approach in favor of a more responsible policy.

Promising as this may be, when you look below the surface questions arise whether there is any meaningful change in policy at all. State officials have informed us that while OSM has indeed slightly opened the funding door, the states still remain "chilled out" of the process. The problem centers on OSM's extremely stringent standards for elgibility and burden of proof. In short, states must prove that the water problem was solely a result of pre-act mining. In the eastern coalfields, where regions have been mined, remined, and are currently being mined again by both surface and underground methods, the ability of a project to meet this methodology, especially with very limited pre-act data, is extremely difficult. One only needs to read OSM's new policy statement (attached) to understand that OSM still is not very interested in reclaiming water projects. As a result, the new policy statement has generated little optimism among citizen groups.

Before I leave this issue, I would like to impress upon the Subcommittee the importance of this problem. I am told that several months ago over 500 people attended a state hearing in

Harlan County, Kentucky, regarding the State's AML water study for funding the AML water project in the Yocum and Kenvir communities. I am sure that the Chairman knows how difficult it is to get coalfield residents in large numbers to take part in public hearings. Nevertheless, it was a tremendous turnout of public interest. A common statement made to the State by citizens was "Why are you spending money on reclaiming gob piles when we need water?".

More to the point, I am told that virtually every morning Nadine White, a resident of the very poor Kenvir community, goes door to door collecting money just to cover the power bill on the pump of their alternative water system. This money isn't collected to pay for the water, it is just for the electricity for the pump. Clearly after ten years of this law, a more flexible OSM policy with respect to water projects is needed.

My second point today is to bring attention to problems associated with OSM's response to AML emergencies. When Congress wrote this Act, it clearly intended that OSM retain the responsibility to respond to AML emergencies. By giving OSM this duty, Congress was ensuring that emergencies such as landslides, surface cave-ins, and mine fires could be immediately responded to by a federal agency. It was thought that a state's responsiveness may be hindered by its other AML responsibilities. Nevertheless, OSM, under this Administration, has attempted to turn over its emergency responsibilities to the states. While

several states have accepted OSM's offer, many have not.

Where OSM does retain this responsibility, there appears to be a growing problem with OSM's ability to respond to AML emergencies in a timely manner. For example:

For over two years, the Miles Ratliff family of Grundy, Virginia has faced an advancing landslide. The slide has been generated by an AML site above their house. The State did an initial study and turned it over to OSM for emergency response. OSM investigated the slide in April of this year. As of August, they had yet to take any action. Instead they were still studying the slide to determine whether it is mining related. Meanwhile, the slide was now up against the Ratliff's house, who have since had to evacuate their home due to the danger. Ironically, in a very recent OSM/State publication entitled 1977-1987 The Abandoned Mine Land Program , it claims, "When conditions are especially hazardous, emergency work can often be underway within 24 hours." (pg. 20).

In 1985, in War, West Virginia (McDowell County) a woman died, and her daughter suffered brain damage allegedly from toxic fumes generated from a burning coal refuse pile. This story was covered extensively by Charleston Gazette. Apparently OSM first investigated the refuse pile fire in 1984. Officially, it was deemed not to be an emergency or a threat to area residents, and turned it over to the state to be processed through normal AML

channels. Several months later the tragedy occurred.

These are perhaps two of the more egregious failures of OSM to carry out its emergency responsibilities in a timely manner. In part, the system suffers from a predictable problem. From what I am told, OSM's emergency response is being hamstrung by bureaucracy. I would like to clearly state at this point that it is not my intention to be critical of frontline OSM personnel, many of whose work should be highly praised. Rather, the problems seem to be embroiled in the system. Responsiveness is being compromised at the frontlines by increased paper work. As the paper goes up the managerial chain the process is slowed down even more. I am told that such delays are resulting in some cases of OSM taking up to one year to get a contract signed for emergency work. These cases bare little resemblance to the 24 hour pledge. I have also been informed that OSM has even studied the emergency delay process but that the recommendations of the study have led to even more paper work being required.

Emergency response problems promise even to get worse in the future due to upcoming staff cuts in the AML program. I am told that at least 20 AML (non-Washington) staff positions are slated to be cut during the next fiscal year. It does not take a genius to understand that this will only exacerbate an already strained process.

Coalfield families whose lives and homes are presently, or

in the future will be, threatened by the dangers emanating from abandoned mines deserve a better response. At least they deserve the benefit of the doubt.

Thank you for the opportunity to testify.

U. S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT
DIRECTIVES SYSTEM

Subject Number: AML-8
Transmittal Number: 331
Date: 05/08/87

Subject: Abandoned Mine Land Funding Policy for Water Supply Systems

Approval: Jed D. Christensen | Title: Director

1. Purpose. This directive provides guidance on the use of Abandoned Mine Land (AML) funds for State Reclamation Program projects involving the construction of water supply systems.

2. Definitions.

a. AML funds. Funds used for either State or Federal AML programs from appropriations from the Abandoned Mine Reclamation Fund.

b. Water supply system. A specific device, or series of devices, for the collection, purification, transmission, and/or distribution of water from source to consumer.

3. Policy/Procedures.

a. Background. Section 403 of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) established the objectives of the AML program including the prioritization of problems to be considered for reclamation.

The first two priorities involve the protection of the public health, safety, and general welfare from the adverse effects of past coal mining. The third priority focuses upon the restoration of land, water resources and the environment, and the fourth priority upon AML reclamation research. The fifth priority specifically addresses public facilities. Water supply systems would, in most cases, be a sub-category under public utilities, but may also include private utilities and individual water supplies.

The legislative history of Section 403 further clarifies and supports the interpretation that AML reclamation projects which protect, repair, replace, construct, or enhance public facilities, including water supply systems adversely affected by mining practices, are a priority five for AML reclamation funding purposes. However, there are cases where a water supply system may have been significantly affected or damaged by impacts associated with abandoned mine lands, thereby generating health and safety problems to the users of the water supply system.

b. Policy. It is the policy of OSMRE that water supply system projects constitute a priority one or two problem only when (1) the water supply system has been significantly affected by the adverse effects of abandoned mine land, and (2) where it is necessary to protect the public health, safety, and general welfare. In all other cases a water supply system project will be considered a riority five project.

c. Procedures.

(1) Field Offices should carefully scrutinize the scope of proposed water supply system projects to ensure compliance with the requirements of SMCRA and the policy established through this directive. At a minimum the following factors should be considered in making the evaluation:

(a) The extent to which the problems associated with the water supply system resulted from deterioration, through aging, of facilities that are due for normal or routine maintenance or replacement (e.g., sewer lines, dam sedimentation, pumping facilities);

(b) The degree to which the AML problem affected the water supply system. A direct causal connection between mining practices and the damage done to a water supply system is not always clear. Such other factors as public use, weather, materials used, method of construction, or other pollution sources may also have contributed to the degree of damage (e.g., a water supply system may e affected by industrial, agricultural or public waste, agricultural sedimentation, or active mining);

(c) Whether there are other agencies, State or Federal, that could more appropriately handle the water supply project; e.g., publicly owned public utilities or quasi-public commissions, EPA, etc. If the problem was totally AML caused, then AML is probably the appropriate funding source, although we would encourage the State to exhaust other possibilities;

(d) Whether alternative sources of water supply systems are readily available; i.e., public versus private sources, different aquifers, different watersheds, etc.

(e) Whether available AML funds in the State will be sufficient to address higher priority reclamation (i.e., would funding of a priority five water supply system project prevent addressing higher priority problems).

(f) Whether the proposed water supply system project is limited to the restoration of water service to the same number of persons originally served. An enhanced water supply project for a new population or service district would not be acceptable and should not be funded.

(2) Where repair or replacement of a water supply system is incidental to abatement or reclamation of an AML problem, the project may be funded provided the corrective work is necessary and that it is the most cost-effective way of solving the AML problems. The authority that controls the water supply system should be encouraged to participate in the project through cost-sharing. Some examples are:

(a) A water supply reservoir has been filled with sediment as a result of erosion of an abandoned strip mine. If it can be shown that the problem is causally related to the past mining and is a hazard to public health, removal and use of sediment from the reservoir as part of a project to reclaim the AML problems may be beneficial and cost efficient method of solving the problems.

(b) If impact on a water supply system is the direct result of the process of correcting an AML problem, depending on the particular situation, alternate facilities, either temporary or permanent, may be constructed as part of the plan. Such situations should be avoided except where absolutely necessary. For example, if the facility was located within the area subject to a reclamation project and its removal or relocation was necessary to accomplish the project, construction of an alternate facility would be necessary.

(c) If mine subsidence (not associated to an ongoing AML reclamation project) resulted in a serious break in a water line or in a sewer line that would affect an aquifer, the subsidence problem may be abated. The repair to the line could not be funded since the source of pollution to the aquifer is not AML related and there are probably other entities with continuing responsibility.

(d) If a break in a water or sewer line causes or contributes (induces) to a subsidence problem, the mine subsidence problem can be addressed if there is a health and safety impact associated to it. The repair of the water or sewer line is not AML related and therefore may not be funded.

(3) Construction or repair of a water supply system may be classified as either a priority one or two only if:

(a) the quality of the water supply is a public health hazard, and

(b) the problems with the water supply source are directly and predominantly the result of eligible AML, and

(c) reclamation or abatement of the AML problems compared to construction of a water supply system is not cost effective or will not solve the problem, and

(d) the construction of the water supply system will eliminate or greatly minimize the existing danger to the public.

(4) In those instances where the AML problem is not the sole cause of the degraded water supply, funding should reflect that percentage of the project that represents the percentage damage caused by the AML problems. Projects in this category, however, should be classified as a priority five - public facility project.

d. Responsibilities.

(1) Pursuant to a State's approved reclamation program, they are responsible for evaluating and prioritizing AML projects and determining their eligibility as part of the grant submission process. States are required to provide substantial justification for assigning a priority one or two designation to a proposed water supply project.

(2) The Field Offices are responsible for the review, approval and administration of all AML reclamation grants. Field Offices should consult with the technical divisions under the Assistant Directors for Eastern/Western Field Operations (E/W/FO) and Program Policy in reaching a determination of the appropriateness of funding a water project. No water supply project should be included in a grant award without concurrence of the appropriate AD/E/W/FO, after the AD/E/W/FO's consultation with the Deputy Director for Operations and Technical Services.

4. Reporting Requirements. None.

5. References. Surface Mining Control and Reclamation Act of 1977, Sections 403 and 404; and sections on water systems and sewer lines in memorandum dated September 12, 1983, from the Assistant Director for Program Operations and Inspections, to the Field Office Directors.

6. Effect on Other Documents. Replaces the October 25, 1985 letter from the Director of OSMRE to Senator Mitch McConnell.

7. Effective Date. Upon issuance.

8. Contact. Division of Abandoned Mine Land Reclamation, (202) 343-7910.

ORAL TESTIMONY OF BARBARA LEVI BEFORE THE SENATE

SUBCOMMITTEE ON GOVERNMENT EFFICIENCY

OCTOBER 23, 1987

I am Barbara Levi, a Biology teacher at Soddy Daisy High School in Hamilton County, Tennessee. I live in the Flat Top Mountain section of Walden's Ridge on Burchard Road which runs parallel to the east escarpment overlooking the Tennessee Valley. I have prepared a written testimony that addresses many of the policy questions surrounding the use and abuse of AML funds and have submitted it to the committee, but I would like to take a few minutes today to tell you about the effects that abandoned strip mines have had on the quality of life in our community.

The Board Camp Creek mine site is within 1/2 mile of my home and the other fifteen homes on Burchard Road. The 175 acre site was mined in the late 60's and early 70's. No reclamation attempts were made on this area until this year. Since the area was mined before a reclamation bond was required, no one would accept the responsibility for reclaiming the land. The coal companies left the country, the state and federal agencies claimed no responsibility for the site,and the land owner made little attempt to correct the situation, so the land has been deteriorating steadily for fifteen or more years. I would like to elaborate on some of the problems which have affected the local residents. One problem has been the general misuse of the land by the general public for such things as a garbage dump, a 4-wheel vehicle and bike track, a meeting place for drug use and sales, a camping area for rowdy beer drinkers, a rifle shooting range, and once even a human corpse was hid there by a murderer. Obviously, all of these situations have created a nuisance to the neighborhood.

The major concern to the people on the mountain is the contamination of the local water table which supplies the only water source to their homes--deep wells. The upturned spoil from the mining has exposed the very reactive and toxic Whitwell Shale. Water running through the Whitwell Shale leaches into the water table and creeks, creating acid water of a pH between 2.8 and 4.0 according to the national AML Inventory performed in 1981. The iron and manganese mineral levels according to this same report were extremely high causing the three tributaries to Board Camp Creek to be contaminated as well as the local water table. The iron is so bad that residents often have to wash their clothes in a washateria because of the bad orange stains caused by their water since the mining. The mining activities and lack of reclamation have also caused the water table level to drop in the wells, causing several residents to have to redrill new wells. Arthur Burchard, a disabled black lung patient, who lives on the road has had to dig five separate wells since the mining of the area. Robert Elliott, retired, has lived in the area for 15 years, in which time he has had to drill three separate wells. Every resident in the area has had to install expensive water filtering systems to make their water usable.

The effect that 15 years of erosion, flooding, and siltation have had on Board Camp Creek, Big Soddy Creek, Soddy Lake, and the Tennessee River is a special concern to all the people in Hamilton County. The mining has rendered the creeks dead of aquatic life and choked the streams and lake with silt from the mine. Soddy Lake was once a 15 to 20 ft. deep lake; now it is filled with sediment such that its depth is less than 6 feet in most places and much of it has become mud flats. The flood of August 16, 1982 demonstrates the danger caused by such a situation when the Highway 27 Soddy Creek bridge was washed away carrying three occupied cars into Soddy Lake.

Another problem created by the unreclaimed site has been the devaluation of property near the area. This is one of the great uncounted costs of stip mining that are borne by residents of the coalfields. Our brow property is of the same quality and beauty as the other ridge escarpments of Signal Mountain and Lookout Mountain and the population growth in Hamilton County is rapidly moving in the North Hamilton County-Soddy Daisy direction. The area borders the new Corridor J Highway as it crosses the Walden's Ridge on route to the Sequatchie Valley. The presence of an eyesore like this abandoned mine is very detrimental to the development of the land.

The good news is that in 1987, $348,125 of state AML money was allocated for the Board Camp Creek site; the bad news is that it was only enough to reclaim 65 of the 175 acres on the site. The most severe areas were not even attempted, leaving areas with 110% grade outslopes going to the edge of the creek and 200 ft. highwalls with car-size boulders tumbling down and contaminated acid water still draining into Board Camp Creek. I understand that Senator Sasser was instrumental in procuring the release of AML funds to the state and I would like to express the gratitude of numerous coalfield citizens for your considerable effort. However, we must understand that the scope of the problem is much greater than the resources at this time. The Office of Surface Mining has chosen to cut Tennessee off from the discretionary funds that should be coming to the State. We have been told by State officials that even if Tennessee had gotten all of the money it possible could have gotten and continued to do so until 1992, there would still not be enough to reclaim all of the land that remains scarred and bleeding. We've just put a patch on this wound; healing will require a commitment that this administration seems unwilling to make.

ADDITIONAL WRITTEN TESTIMONY OF BARBARA LEVI BEFORE
THE SENATE SUBCOMMITTEE ON GOVERNMENT EFFICIENCY
OCTOBER 23, 1987

The State of Tennessee is unique among coal-producing states in its treatment by the Office of Surface Mining (OSM). Since the State gave up primacy in 1984, OSM has withheld from the State that portion of the discretionary funds which are supposed to go to states which do not have primacy. This policy was instituted by OSM in order to coerce the State into regaining primacy quickly. After 3 years of a federal program in the State and the McWherter administration stating that it will not pursue primacy in next year's legislative session, it is obvious that this "carrot and stick" approach has not worked. The policy has put reclamation in Tennessee disasterously behind schedule, defeating the intent of the Surface Mining Act in creating the fund. OSM should apply the same formula for funding to Tennessee that it does to the other non-primacy states and get a federal reclamation project going.

Tennessee's loss of primacy seems to be little more than a "scapegoat" excuse for a larger administration policy not to disperse the needed reclamation funds; the RAMP program is a good example. While Soil Conservation Service is eligible to receive up to 20% of the AML funds, the amount they have actually received is much closer to 5%. This money is separate from and not in "competition" with the federal program AML money and the funding for the RAMP program was not affected in any way by the presence or loss of primacy.

RAMP works. Their reclamation funds are not sitting in large surpluses. Since the program began in Tennessee, RAMP has completed 41 jobs covering 350 acres. There are currently pending in Tennessee 110 applications from

landowners asking for assistance involving an estimated 1,500 acres. Soil Conservation Service estimates that it would take about $3-$4 million to clear up just this backlog of applications. Last year, SCS in Tennessee got approximately $400,000, their largest amount ever.

The absence of AML funding for Tennessee has other effects. The Knoxville office of OSM has no AML contact person for emergency situations; any such situation would be referred to the State which would have to work through OSM's Pittsburg office for assistance. A comparison of two emergency situations in Tennessee is instructive.

Two separate situations where the public was endangered by slides occurred before and after OSM closed down its regional AML office. The slide near Habersham was the first back in about 1980-81. Within 24-36 hours after it was reported, personnel were on site. The next day, there was a pre-bid "showing" of the site to potential contractors.

In December 1983, the slide near Norma, Tennessee was reported. An eligibility study and investigative report were sent to Pittsburg in August 1984. Approval for funding came from OSM in October 1985. In the meantime, the slide area continued to threaten the road below it often making it impassible to the school buses and cars which used it daily.

The $2 million that Tennessee has gotten in AML money has cost the taxpayers of the State an equal amount in matching funds. Last year's Annual Report on Water Quality in Tennessee identified abandoned and active surface mining as the largest source of pollution in the entire State. Coal operators in Tennessee pay into the AML fund at the same rate as operators in other states; it is a wholly inappropriate policy to withhold needed AML funds in these

situations. Considering the documented inadequacies of some other state programs, OSM may find itself again in the position of resuming primacy elsewhere. Not only does such a policy fly in the face of Congress in creating the AML fund, it punishes the very people that SMCRA was established to help--the coalfield citizens who must continue to live with the danger, the contamination, and the neglect of the agency.

Testimony of
L. Thomas Galloway
On Behalf of
The Environmental Policy Institute

Before the
Subcommittee on Government
Efficiency, Federalism and the
District of Columbia
Committee on Governmental Affairs
U.S. Senate

October 23, 1987

L. Thomas Galloway
Galloway & Greenberg
Suite 801
1835 K Street, N.W.
Washington, D.C. 20006

Good morning. My name is L. Thomas Galloway, and I appear today on behalf of the Environmental Policy Institute. Today, in the brief time available, I would like to address three aspects of the Abandoned Mine Land Program ("AML").

(1) Use of AML Auditors - As this Committee is aware, the Office of Surface Mining maintains a corps of auditors to assure that payments are made into the AML Fund as required by law. The value of these auditors and their work has become increasingly evident, and Congress has recently acted to increase the number of auditors employed by the Office of Surface Mining.

We would propose a simple and non-burdensome change in the auditors' review procedure. As Congress is well aware, the Black Lung Trust Fund is based on payments by coal operators for each ton of coal produced, just as is the AML Fund. For various reasons, mainly because the payment is an excise tax to IRS, there is no corps of auditors determining whether operators have paid into the Fund. Rather, an "eye-ball" estimate of overall production is made, and no mine-by-mine or company-by-company work is done (unless a random IRS audit is conducted). No one knows how much money has been lost to the Black Lung Fund because of underpayment or failure to pay at all. But there can be no question but that the amount runs into tens of millions of dollars. To address this problem we propose that the AML auditors as a normal part of their duty check whether Black Lung payments have been made in the appropriate amount.

A Memorandum of Understanding between DOL and DOI could establish simple and effective procedures for coordination between DOL and DOI. We believe OSM would be willing to undertake such a task, and may be doing it now on a limited scale.

The benefits are obvious. For example, when the U.S. Attorney brings suit to collect past due AML fees, there is simply no reason he should not seek collection of past due Black Lung fees if they are owed. The Black Lung Fund is chronically short of funds, and while good audits will not produce an unlimited flow of money, it can produce millions with very little additional effort or resources.

(2) AML Collections - At least $30 million is currently owed the AML Fund. The actual amount owed is substantially greater because of underreporting and failure to report. We propose a stepped up, several prong enforcement effort to collect AML fees.

First, a concentrated effort should be made to collect ownership and control information on serious AML violators and then block permits to those persons until the fees are paid, or an enforceable schedule for payment is agreed upon with OSM. As with other major violations, the permit block sanction is the most effective single tool to bring about abatement or payment, but it is useless without good ownership and control data. An intensive effort to collect such information should be made, targeted at those situations most likely to produce results.

Second, OSM should make expanded use of NOV authority a priority. Third, there should be a stepped up audit program to stamp out "wildcat" coal. OSM estimates that at least $50 million dollars of wildcat coal is produced in Kentucky annually. Any effort to erase wildcatting will have to choke it off at the point of sale and use of AML audits is the best single way into the maze.

Finally, OSM should make use of the recently amended False Claims Act to prosecute persons who falsify production in their quarterly reports to the Agency, thus underpaying the Fund.

(3) Remining - I would like to briefly discuss the relationship of the remining of abandoned mines to the AML Fund. The potential for remining to reclaim many of the thousands of abandoned sites in America's coal fields is great. We in the environmental community have worked hard on the remining issue in an effort to encourage remining of abandoned mined lands. We consider the issue a high priority.

Incentives for remining could take many forms, some responsible and some not. As far as environmental constraints on remining are concerned, we have on several occasions in the past agreed that application of certain performance standards intended for virgin sites may not make sense in a remining context, and that different, and in some cases, lesser environmental controls may be warranted. In the past three years we believe that we have addressed the

major environmental constraints on remining. With water, highwalls and revegetation already addressed, we believe that the major work in structuring incentives to increase remining activity will lie in other areas.

My primary objective today is to emphasize the need for a mechanism to examine the problem, rather than to offer substantive proposals to increase remining. We have a number of ideas which we believe would increase remining significantly and which we believe merit consideration; however, much work is needed on them before we could advance them as concrete proposals for legislation or regulatory action. Without doubt, our ideas would benefit greatly from a cross-fertilization process with others interested in and experienced on the issue.

There have been a number of attempts to examine remining, most recently by OSM. However, to be successful, the issue and the debate needs to be raised to a higher level, and must involve not simply OSM personnel but ranking Departmental personnel and members of Congress. The issue merits this level of attention, and without the attention of such persons, I do not believe much progress is likely. We are willing to work with the Committee to develop such a mechanism, be it formal or informal, and once it is established, to participate actively in working for a consensus on the issue.

- 5 -

CONCLUSION

There are many other AML issues which merit attention. The three I have arisen can be addressed and results produced within existing budgetary, legal and political constraints.

Thank you.

TESTIMONY

Presented by L. H. Burnett
CHAIRMAN, TENNESSEE SURFACE MINING COMMITTEE

for

COMMITTEE ON GOVERNMENTAL AFFAIRS

SUBCOMMITTEE ON GOVERNMENT EFFICIENCY,
FEDERALISM, AND THE DISTRICT OF COLUMBIA

CHAIRMAN: JIM SASSER, TENNESSEE

Mr. Chairman, members of the Sub-Committee on Government efficiency, my name is L. H. Burnett, Chairman of Tennessee Surface Mining Committee, Chairman of Grundy County Commission (county governing body), Chairman of Grundy County Soil Conservation District, and a resident of Pelham, Tennessee which is located in the lower Cumberland Mountains - a coal strip mining region. I am the Tennessee representative to the committee of Appalachian Coalition for Abandoned Mineland Reclamation - an eight state group concerned with coal strip mining problems. I am also on its Executive Committee and its Treasurer. This coalition of Appalachian Mountain States is a part of the National Association of Conservation Districts (NACD).

I am also representing 21 Tennessee counties that have a valuable resource of coal - coal that is being and has been stripped from the mountains and plateau of one of the most scenic regions of our nation. Unfortunately many areas within the region were stripped and abandoned prior to 1977 and continue to spew sediment and acid water, and presents tremendous health and safety risks to the rural communities and citizens who attempt to make a livelihood working in the region.

My purpose for appearing here today is to speak forcefully in support of full funding for the Rural Land Reclamation Program, better known by some people as the Rural Abandoned Mine Program (RAMP). This program is a part of Public Law 95-87 titled the Surface Mining Control and Reclamation Act of 1977. This Act established (1) the Office of Surface Mining and provided for Abandoned Mine Land (AML) funding to qualified states, (2) discretionary funding by the Secretary of Interior to qualified projects and (3) Rural Land Reclamation

Program or RAMP. The law allows that up to 20% of a reclamation fund made available to the Secretary of Interior may be transferred to the Secretary of Agriculture to be used in the RAMP program which is administered by the Soil Conservation Service.

In my 10 years of experience as a leader and concerned citizen, never have these funds been provided greater than 5 percent in any one year. In my opinion, the limited 5 percent of appropriated RAMP funds has been used wisely and efficiently according to the intent of Congress when Public law 95-87 was passed. However, there has never been enough funds available for RAMP to do the kind of job needed. According to records available for the past four years, 65 percent of all RAMP funds were used for direct on-the-land reclamation, 25 percent for technical assistance to landowners and 10 percent for administrative and overhead costs for the Soil Conservation Service.

The problem, as I see it, is the Secretary of Interior has failed to adequately request and transfer an amount approaching the 20% intent of Congress. As a matter of fact, the Secretary has not even recognized the benefits and impacts that the RAMP program can have in a rural community that depends on Agriculture and timber for its economic existence and well being. I come before you to testify to you about the needs and benefits of a program carried out by local Soil Conservation Districts with technical and contracting assistance of USDA's Soil Conservation Service.

The Abandoned Mine Reclamation funding is not new money but funds that have been collected from coal mining operations and is being held in trust by the U.S. Treasurer and is appropriated annually by Congress to the Secretary of

Interior. This fund is derived from an assessment of 35 cents per ton of coal produced by surface mining and 15 cents per ton from underground mining. The amount of fees generated in the abandoned mine funds beginning in FY-1978 through FY-1986 is in excess of $1.8 billion and approximately $240 million is collected annually. Only $88.6 million was transferred to the Secretary of Agriculture for FY-1978 through FY-1986 compared to a potential funding at the 20 percent level or a total of $360 million. The Rural Abandoned Mine Program is a 15-year program scheduled to expire in 1992 with a national goal of treating 20 percent of the abandoned coal mined land. At the end of FY-1986, funds available have allowed only 258 acres of Tennessee's eligible abandoned coal mined land to be reclaimed through the Rural Abandoned Mine Program.

There is an apparent breakdown in the budget and appropriation request when it comes to funding the RAMP program. I am requesting this subcommittee to amend PL-95-87, section 401 to read "20 percent of the Abandoned Mine Reclamation Funds will be annually appropriated directly to the Secretary of Agriculture budget and then transferred to the USDA Soil Conservation Service for implementation of the Rural Abandoned Mine Program.

Nationally there are approximately 1.1 million acres of abandoned mine land of which Tennessee has approximately 46,000 acres. The acreage in Tennessee is yielding approximately 4.6 million tons of soil annually. If this annual soil loss was loaded in rail cars the train would reach a distance of approximately 562 miles. Imagine how long a train would be for the erosion occurring on 1.1 million acres in the United States!

Through FY-86 nationally 579 RAMP contracts reclaiming 10,135 acres have been carried out, of which 36 contracts and 240 acres are in Tennessee. Nationally, this work has eliminated over 1,000 health and safety hazards, controlled erosion on 6,200 acres, and prevented 618,000 tons of erosion from leaving the sites. Visual quality has been improved on 5,400 acres and water quality improved in 57,600 acres of lakes and 277 miles of streams since the program began in 1979. The job has only begun with over 10,000 acres reclaimed out of a total of 1.1 million acres nationally. I realize that the AML program that provides for funding individual state program is also an important factor reclaiming abandoned lands. However, it has a certain objective and goal that compliments special rural community reclamation efforts to protect life and health and restore land to productive agricultural uses.

This erosion in Tennessee, which I see first hand, is rendering 46,000 acres practically useless, polluting our water supplies, silting our streams, rivers, and reservoirs, costing millions of dollars annually to maintain flood protection and purify our water supplies. These critical eroding acres, mine openings, gob coal piles, and water pits have caused numerous deaths and injuries to Tennessee citizens. Our people are living in many instances within a few feet from these hazards.

One of the greatest losses to rural counties such as my home county of Grundy County is the loss of tax base. If the 46,000 acres of abandoned coal mine land were reclaimed then instead of a liability these acres could be put to agricultural uses and improve the tax base in rural counties. The abandoned mined land in my county is assessed at $50.00 per acre (which in my judgment is high) after it is reclaimed it is assessed at $350.00 per acre. The small

rural counties of the Appalachian Coal Mining States have a very hard job financing the County Government. Across Appalachia many of the reclaimed abandoned lands have been utilized as industry, commercial, recreation, and home sites.

Enabling legislation for the AML fund is due to expire in 1992. I am requesting this subcommittee to consider the extension of the enabling legislation until 2007 so the work can continue with this critical work.

Mr. Chairman, I want to get personal and tell you of some horrible experien that I have first hand knowledge concerning the need for reclamation.

In 1980, Mr. Paul Smith, age 30 years of Gruetli, Tennessee, drowned while swimming in an old strip pit that had filled with contaminated water.

Mr. Robert Anderson of Palmer, Tennessee, has spent the past 15 years paraly from the middle of his back down to his feet, after being injured in a swimm accident in an old strip pit.

You may say that they chose to use these areas for swimming at their own ris and this is true, but swimming areas are scarce in the rural coal mining are of the Cumberland Plateau.

Also, little Binkie Roberts, age 2½ years old of Tracy City, wondered away fr his mother's side while she was hanging up her wash. As quick as a wink, little Binkie and his dog were missing. His mother called but he small boy d not answer. Mrs. Roberts became hysterical and knew the possible danger he

would be in. The mother noticed the pup, which was always at her son's side, coming from the mine spoil area. Mrs. Roberts rushed to the area the pup came from and there was little Binkie stuck in a swamp area filled with silt and up to his diaper in soft mud. Approximately, 25 feet away from the swamp is an area standing full of water. Little Binkie wasn't hurt, only frightened, but 25 feet more and it could have cost him his life. This occurred in the summer of 1985, fall of 1985 this site was reclaimed, with funds from the RAMP program.

Most coal mining in the area was done before Public Law (95-87) was passed. Land was left as waste land and deep water pits were formed, some with pH of 2. All aquatic life disappears below pH of 5, this is the equivalent of weak battery acid. How many people use sulfuric acid to keep algae out of their swimming pools? It will do the same job, but will eat up all metal parts, plus your swimming trunks and skin before long.

We need the full 20 percent of the Rural Abandoned Mined Land Fund that is provided for in Public Law (95-87) released, the people of Appalachian could help their economy without cost to the tax payers of America. I would remind you that this money is not tax payers money. It is a fee assessed on each ton of coal mined in the United States.

If this law is allowed to run its course with only 5 percent being utilized as RAMP funds as in the past, there will be many thousands of acres left in every coal mining state in the nation unreclaimed and continued to be safety and health hazards. The counties or individuals cannot afford the price of reclaiming.

Thus, for many years to come, these abandoned coal mine sites will continue to be used for all kind of waste. Streams will continue to be polluted from acid drainage. The health and danger to children, as well ad adults, will continue. Also, the loss of revenue to the county will be enormous.

Mr. Chairman, with your approval I would like to present some photos of sites in Tennessee that further define the dramatic need for full 20% RAMP funding and some of the accomplishments of the program.

I would like to urge you to work to extend Public Law 95-87 with needed modifications, before it expires in 1992.

Also, on October 8, 1987, we are having a Mined Land Forum in Grundy County, Altamount, Tennessee. We will be viewing abandoned mines, mines reclaimed and mines in operation. I would like to invite the committee, committee staff members and ohers who may be interested, to visit with us and view items we have discussed today.

Thank you, Mr. Chairman, for my time to appear and giving my concerns and request due consideration.

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

Testimony before the United States Senate: Committee on Governmental Affairs: Subcommittee on Government Efficiency, Federalism and the District of Columbia
October 23, 1987

Title IV of the Surface Mining Conservation and Reclamation Act.

My Name is Richard Bielicki and I am Director of the Bureau of Abandoned Mine Reclamation, Pennsylvania Department of Environmental Resources. The responsibilities of my Bureau include administration of Pennsylvania's abandoned mine lands reclamation programs. I appreciate the opportunity to come before this committee to present Pennsylvania's views on the Title IV program and to present our recommendations on resources Congress should make available to help us with this important work.

My testimony today covers three areas: 1) The need for higher appropriations, 2) The importance of assuring that the discretionary monies in the Title IV program are used only to address the highest priority needs, and 3) the need to continue the program beyond 1992.

From 1860 until about 1960, Pennsylvania and to a lesser extent other Appalachian states, literally fueled the industrialization of this nation. During times of great national peril in World Wars I & II, we exploited our coal resources with enormous economic efficiency. Pennsylvania has mined coal on a large scale for more than 100 years. We've extracted more than 15 billion tons and not until 1945 was any legislation in place to require consideration of the health and safety or environmental consequences.

Given the nature of coal mining in Pennsylvania and the fact that we produced nearly twice as much coal as the second largest producing state, it is not surprising that we have the greatest number of priority health and safety problems in the nation.

Pennsylvania's AML program has defined over 4,800 high priority health and safety problems with an estimated cost to reclaim of nearly $2 billion. Addressing all of our abandoned mine problems throughout the Commonwealth has been estimated to be a $25 billion undertaking.

With historical funding levels Pennsylvania stands to receive a total of less than $500 million in Title IV funds through 1992. This will leave us with a shortfall of nearly $1.5 billion in remaining health and safety problems as defined by OSMRE.

The OSMRE is now collecting approximately $220 million per year from the active coal mining industry while Congress has been appropriating approximately $160 million per year to pay for the grants to states portion of the Title IV program. The reserves have been accumulating for some time now and have a reported value of over $400 million.

For years the states have been told that program funding must be dependent upon states' "obligation rate". OSMRE and OMB are using the unobligated balance as a measure of states' financial needs. However, the amount of money which remains unobligated in any specific grant has nothing at all to do with a state's true need for the money or our administrative ability to productively use the money.

The lead time in developing reclamation construction projects is substantial, frequently 1-2 years. It takes time to negotiate with landowners, to design individual solutions to completes land reclamation problems and to assure that contracts are cost effective and won't drive up future project costs. Carrying a grant open with relatively large unobligated balances for several years is normal. In reality, however, the money in a grant is committed to individual projects the moment the grant is signed. There are no unobligated dollars, per se. There are only unsigned contracts with construction contractors to complete the designed reclamation.

Nevertheless, states have been significantly increasing their so-called obligation rates. From 26.7% of all funds granted in September 1984 to 69.4% by September 1987. The argument of limiting grants to states due to low obligation rates is no longer valid within any context. Therefore, appropriations for grants to states should immediately be increased to $220 million. We have the problems that need funding and we have the programs to successfully address these problems at the increased appropriation level.

This brings me to my second point.

We believe that it is important for Congress to restate its commitment to accomplishing the priorities set in section 403 of the Surface Mining Control and Reclamation Act. Section 403 clearly indicates expenditures from the fund shall first address "the protection of public health, safety, general welfare and property from the extreme danger of adverse effects of coal mining practices."

In establishing the states share of the program, Congress acknowledged the different AML problems and needs across the country. However, we can find no justification for the use of discretionary funds for anything other than priority 1 & 2 problems as long as there are states with abondoned mine lands which pose serious threats to public health and safety. Projected out to 1992, many states will receive sufficient funds from the "states share" of the program to correct all of their 1 & 2 priority problems. Pennsylvania will not. Until all priority 1 & 2 problems have been corrected nationwide, the descretionary monies should not go to funding lower priority work. Unfortunately, OSMRE's current method of allocating the discretionary monies does not assure that the most critical needs are being funded

before lower priority projects. Congress needs to assure that expenditures of Title IV funds are consistent with the priorities extablished in the law.

There are several ways in which OSMRE has strayed from Congressional priorities in administering the discretionary funds. First, they have moved away from allocating discretionary funds based solely on the National Inventory of AML hazards, to an allocation formula that weighs historical coal production equally with a share of high priority health and safety problems. Allocation of these funds should be directly tied to need as defined in the Act. The only true measure of need is the standardized nationwide inventory of problems as defined by OSMRE.

Some states will say that basing the discretionary allocations solely on the inventory is unfair because the inventory itself is full of inaccuracies and underreporting. The inventory is not perfect, but we in Pennsylvania did a good job of compiling the relevant data and documenting our problems. We see little justification for using an inferior allocation system because some states did a poor job of collecting the necessary information. Instead we challenge OSMRE and the other states to do a better job.

A second way in which OSMRE has moved the Title IV program away from the priorities of the Act was to set July 31, 1987 as an arbitrary closing date for the National Inventory. Freezing the inventory has one extremely negative impact, it also freezes the formula used to allocate discretionary funds. This action on the part of OSMRE will result in allocations of funds to states to address health and safety problems long after all of their problems have been corrected.

This closing of the inventory was unnecessary and impairs its dynamic and continuing usefulness. OSMRE should be redirected to bring the inventory to the status of a full management tool; to keep it open, to use it as the legitimate basis for allocating resources and as the only meaningful measure of program progress.

A third potential problem, which may divert monies from health and safety problems is, the proposed minimum state grants program whereby qualified states will be guaranteed a minimum annual grant amount of $2 million. Pennsylvania can support this concept only as long as the receiving state has and is required to commit all funds received under the minimum award to either emergency, priority 1 or priority 2 problems.

A fourth proposal that could divert funds away from priority problems is to use Title IV funds for Superfund eligible projects. Neither the federal Superfund nor the Title IV programs are funded at levels which will allow states to address all of the environmental hazards which are covered in the eligibility criteria of the respective Acts. The Title IV program is funded entirely by fees collected from the coal mining industry, while Superfund is funded through a tax on the petrochemical industry, a corporate surtax and other congressional appropriations.

It seems to us a breach of faith with the coal industry to now propose the funding of toxic waste cleanup with funds derived specifically to reclaim mine hazards. If indeed Superfund projects display a higher health threat to the population than abating mine hazards then, they should be funded first. However, funding these projects should follow the equities already established by Congress in the Superfund Act, not placed as an additional burden on the coal mining industry.

Congress should reaffirm to OSMRE the problem which Title IV was created by Congress to remedy. We should stop these attempts to redirect the Title IV discretionary monies away from cleaning up the nations abandoned mine land hazards and get on with the job of remediating serious public health and safety problems caused by previous mining.

The third point in my testimony is the need to continue the Title IV program beyond 1992.

The Title IV program has a very positive impact on Pennsylvania and other coal mining states. Congress should extend the program beyond 1992 to allow for a continuation of fees collected from the active coal mining industry to be used to address historical health and safety problems.

The Title IV program plays an important role in the reclamation of our most serious health and safety problems. As of September 30, 1987 we have corrected or have under contract, $131.6 million worth of project work which will address 900 of our most serious problems. We have additional projects in the design stages which will eliminate nearly 800 more high hazard problems at an estimated cost of $100.8 million. Funding of these projects however, will only cover about 13% of the total cost of our priority 1 and 2 problems.

Projecting out five years, it is clear that if Title IV terminates in 1992, as it is slated to, Pennsylvania will have received funding sufficient to address fewer than 35% of its high priority 1 and 2 problems.

Pennsylvania is deeply appreciative of the fact that Congress sees the reclamation of abandoned mine hazards as a national and not merely a regional or state problem. To a large extent the deep scars in Pennsylvania's landscape (and other states as well) are there because we exploited those resources to drive the early industrialization of the entire nation.

We understand the cry of the western states that they have solved all of their serious coal mine related problems and either don't favor extending the program or want to spend the money on non-coal problems. We in Pennsylvania and, other states as well, want you to know that we have an enormous backlog of serious health and safety problems and that Congress should continue the program. Without the financial resources available at the national level, Pennsylvania might never be able to remove these hazards.

In summary: the Title IV program is important to Pennsylvania. We need the program funded at the maximum level and we need the accumulated reserves released in a priority manner. The Congress must assure that the discretionary funding is not diverted to lesser priorities until and unless all serious health and safety dangers have been addressed. And finally, the Title IV program should be extended because we will not have enough time or money to address the serious health and safety problems before 1992.

Thank you for the opportunity to present these views.

Written Testimony by
Michael L. Kastl, Director
Abandoned Mine Land Reclamation Program
State of Oklahoma

Submitted to

Subcommittee on Government Efficiency,
Federalism, and the District of Columbia
U.S. Senate

October 23, 1987

Mr. Chairman,

Members of the Subcommittee;

I am Mike Kastl, director of the Abandonded Mine Land (AML) Reclamation Program for the State of Oklahoma. I appreciate the opportunity to submit testimony regarding the efficient management of the Abandoned Mine Land Title IV Program within the U.S. Department of the Interior - Office of Surface Mining (OSM).

Title IV - AML Status

On August 3, 1987, the Surface Mining Control and Reclamation Act (SMCRA) marked its 10-year anniversary.

However, most state AML Programs will commemorate it as a 5-year anniversary date since most state AML Programs were not approved until 1981-82. By the time grant monies began to flow and AML projects were designed, one or two more years had gone by before states were fully implementing AML construction projects. All new programs have their trials and tribulations, and Title IV - AML Programs were no exception. However, states accepted the challenge and have reclaimed thousands of acres of abandoned coal mine land and water. More importantly, the reclamation has improved the health, safety, and general welfare of the public in these areas.

Obligation Rates/AML Funding for State AML Reclamation Grants

In FY 1985, Congress appropriated $236 million for state reclamation grants. However, since that time the AML grants to states have been cut significantly. The reason given by Congress for these cuts was the large unobligated balance of AML funds. Congress must remember that each AML construction grant received by a state is a three-year grant. Therefore, the percentage rate of obligation of AML funds should be tied directly to the percent of the grant period lapsed. Those states with low obligation rates, particularly in the third year of their AML construction grant, should receive less AML funding for the next fiscal year. Congress should not hold the majority of AML states "hostage" because a few states can not fully obligate their AML funds. Most states are responding to Congressional concerns and are working diligently to improve their obligation rates of AML grant expenditures. Recent figures indicate that most states have improved their obligation rates. Presently, with nearly $1 billion dollars awarded to the states, over 65% of the AML funds have been obligated.

At the end of July 1987, many states completed a very intensive and detailed update of their Abandoned Mine Land Inventory problems. The results were obvious - millions of dollars worth of high hazard Priority 1 and 2 AML problem areas are yet to be reclaimed. It is time for Congress to put some stability back in the funding policy for state reclamation grants. This is not the time for Congress to cut funding for state reclamation program grants just for the sake of increasing other Federal reclamation programs such as the Rural Abandoned Mine Program or increases in general administration. By the end of this calendar year the unappropriated balance in the AML Trust Fund will be well over $400 million, according to OSM. With this large amount of unappropriated AML funds, AML programs should not be cut, rather a moderate increase in AML funding should be made. The real benefactor of this increase is the public through a safer and healthier environment.

In addition, it does not seem logical to allow unappropriated monies to sit idle when many states are letting construction contracts at prices far below engineer estimates. The current economic situation offers an excellent opportunity to provide increased reclamation at cost effective rates and at the same time stimulate the local economy.

IRS Issue

A recent (April 11, 1987) Internal Revenue Service (IRS) decision to tax a state-funded abandoned mine land reclamation grant in Ohio has caused several states to halt construction of AML projects worth millions of dollars. For example, $21 million in Wyoming alone was frozen from November 1986 to July 1987. The IRS ruled that grant money received by the landowner to reclaim his property would be treated as "ordinary income". As a result, the landowner must pay $773,000 in back taxes and interest.

Most states are continuing to reclaim AML project sites but fear the recent IRS decision could ultimately result in a "shut down" of the AML construction program nationwide. Landowners, faced with potential tax consequences, would probably refuse to sign "landowner documents" allowing reclamation to take place on their property. States could invoke police powers under Section 407 of SMCRA and pursue reclamation. However, this would only lead to possible litigation, loss of AML Program support, and reclamation delays.

Unlike the state-funded/cost-share Ohio grant, most states receive the majority of their AML funds through 100% Federally funded reclamation programs. Utilizing the closed bid process, third party contractors are then hired by the states to perform the reclamation work.

To alleviate the possible tax, some states have utilized Section 126 of the IRS code for tax exemption of their reclamation grants. Under Section 126, the IRS would exempt reclamation projects certified by the U.S. Secretary of Agriculture.

The use of section 126 is not the answer to this IRS/AML dilemma. The USDA programs exempted under Section 126 are primarily natural resource conservation programs involving cost share payments with landowners. The exemption examples and formulas used in Section 126 are complex and confusing even to those individuals in IRS and USDA who implement the exemptions.

The primary goal of state AML Reclamation Programs, and the highest priority in SMCRA, is the protection of public health, safety, and general welfare from adverse effects of coal mining - not natural resource conservation.

Presently, H. R. 630 and S.563 have been introduced in Congress which would exempt federal surface mining reclamation grants from taxation. It is imperative that Congress enact legislation that would give the Internal Revenue Service clear legislative direction that limits the IRS's discretion on taxation of the AML reclamation grants.

Minimum Base AML Program

Declining coal production and continued funding cuts in AML grants to states have been most disruptive to long range planning and construction schedules of state AML reclamation programs. It has been particularly difficult on states with AML fee collections so limited that their state-share AML funds are inadequate to properly address the AML health and safety problems in those states.

Last year OSM implemented a formula to allocate the Secretarial share of AML funds to states and tribes. This formula relies on 50 percent historic coal production

and 50 percent National Abandoned Mine Land Inventory (NALI). This formula has not improved the funding to small program states but has actually caused a decrease in their annual AML reclamation grants.

In past years OSM has proposed a minimum base level funding policy along with their 50 percent/50 percent allocation formula. An annual $2-3 million grant would be allocated to those small program states that have an extensive inventory of high priority AML projects. These states should not only have to justify these projects as high priority but should also be able to demonstrate the ability to manage a $2-3 million annual program.

Without Congressional approval for a minimum base program, the high hazard AML project areas will continue to take its toll on public health, safety, and general welfare.

A STATEMENT TO THE SUBCOMMITTEE
ON GOVERNMENT EFFICIENCY, FEDERALISM AND DISTRICT OF COLUMBIA
OF THE SENATE COMMITTEE ON GOVERNMENT AFFAIRS
BY THE TENNESSEE VALLEY AUTHORITY
OCTOBER 23, 1987

RECLAMATION OF ABANDONED MINE LANDS IS OF VITAL CONCERN TO THE TENNESSEE VALLEY AUTHORITY AND THE PEOPLE OF THE REGION WE SERVE. WE APPRECIATE THE OPPORTUNITY TO PRESENT OUR VIEWS ON THIS MOST TIMELY SUBJECT.

BOTH COAL AND NONCOAL MINERAL MINES IMPACT THE LANDS, WATERS, AND PEOPLE OF THE REGION. TODAY THERE ARE OVER 31,000 ACRES OF ABANDONED COAL MINES AND 16,000 ACRES OF UNRECLAIMED NONCOAL MINERAL LANDS IN THE TENNESSEE VALLEY.

TVA HAS BEEN WORKING IN MINED LAND RECLAMATION FOR OVER 40 YEARS. WE ARE HERE TODAY TO FOCUS ON RECLAMATION ACTIVITIES WE HAVE UNDERWAY IN TENNESSEE'S COPPER BASIN TO ILLUSTRATE HOW COST-EFFECTIVE TECHNIQUES MAY BE USED TO HELP ALLEVIATE THE MASSIVE ABANDONED MINED LAND PROBLEMS STILL FACING OUR NATION. THIS ACTIVITY IS A COOPERATIVE EFFORT WITH THE TENNESSEE CHEMICAL COMPANY WHICH VOLUNTARILY PARTICIPATES DIRECTLY WITH TVA IN BOTH FUNDING AND CONDUCT OF RECLAMATION ACTIVITIES. THE COPPER BASIN AREA IS CONSIDERED TO BE THE WORST CONTIGUOUS ENVIRONMENTAL PROBLEM RELATED TO MINERAL MINING IN THE EASTERN UNITED STATES. WHILE TWO-THIRDS OF THE ONCE DENUDED 50-SQUARE-MILE AREA HAS BEEN REVEGETATED, OVER 11,000 ACRES REMAINS IN NEED OF RECLAMATION.[1]

---

1 MUNCY, J. A. 1986. A PLAN FOR REVEGETATION COMPLETION OF TENNESSEE'S COPPER BASIN, NORRIS, TENNESSEE. 32 PP.

(SLIDE NO. 1) THE COPPER BASIN IS A MANMADE BIOLOGICAL DESERT NESTLED IN THE TRI-STATE AREA OF TENNESSEE, GEORGIA, AND NORTH CAROLINA.

(SLIDE NO. 2) HERE SOME 32,000 ACRES WERE DENUDED BY CRUDE COPPER SMELTING PRACTICES DURING THE LAST HALF OF THE NINETEENTH CENTURY.

(SLIDE NO. 3) THE BASIN IS DRAINED BY THE OCOEE RIVER.

(SLIDE NO. 4) THE RIVER, THREE DOWNSTREAM TVA RESERVOIRS, AND ASSOCIATED HYDROELECTRIC FACILITIES HAVE BEEN PLAGUED WITH SEVERE SEDIMENTATION AND WATER QUALITY PROBLEMS SINCE THE ENVIRONMENTAL DEVASTATION BEGAN.

(SLIDE NO. 5) OUR RECLAMATION APPROACH IS FOCUSING ON ESTABLISHING MAINTENANCE-FREE VEGETATIVE COVER TO CONTROL EROSION AND RESTORE WATERSHED PROTECTION BENEFITS. SITE CONDITIONS IN THE BASIN INCLUDE AREAS THAT ARE PARTIALLY VEGETATED AND THOSE COMPLETELY DEVOID OF VEGETATION. FOR EXAMPLE, THIS PARTIALLY VEGETATED LOBLOLLY PINE STAND WITH NO GROUND COVER WAS AERIALLY SEEDED AND FERTILIZED[2] IN MARCH 1985.

(SLIDE NO. 6) AFTER ONLY THREE MONTHS, GRASS HAS BEEN ESTABLISHED AND THE TREES HAVE RESPONDED TO FERTILIZATION.

(SLIDE NO. 7) RESULTS ONE YEAR LATER SHOW THE SUCCESS OF THIS APPROACH. THIS EFFORT COST ABOUT $200 PER ACRE.

(SLIDE NO. 8) REVEGETATION ACTIVITIES ON A 210-ACRE TRACT OF TOTALLY DENUDED LANDS BEGAN IN THE SPRING OF 1986. FROM ALL REPORTS, THIS TRACT HAD BEEN BARREN FOR OVER 100 YEARS.

---

2 TVA 1987. AERIAL SEEDING AND FERTILIZATION - A VIABLE OPTION IN LAND RECLAMATION. A PAMPHLET.

(SLIDE NO. 9) INITIALLY, THE GROUND WAS SUBSOILED WITH BULLDOZER RIPPER TEETH TO LOOSEN THE WEATHERED SOIL. THIS ALLOWS FOR INCREASED RAINFALL INFILTRATION AND IMPROVES ESTABLISHMENT OF GRASSES AND TREE COVER.

(SLIDE NO. 10) THE LAND WAS THEN AERIALLY SEEDED AND FERTILIZED AND

(SLIDE NO. 11) HAND PLANTED IN TREES AND SHRUBS.

(SLIDE NO. 12) RESULTS AFTER THE DRIEST YEAR ON RECORD ARE OBVIOUS. EVEN WITH THE ADDED COSTS OF RIPPING AND TREE PLANTING, THIS WORK ONLY COST ABOUT $800 AN ACRE.

(SLIDE NO. 13) AS YOU KNOW, ABANDONED MINESITES OFTEN CAUSE ACID MINE DRAINAGE PROBLEMS. TO HELP ALLEVIATE THESE SITUATIONS ACROSS THE VALLEY, TVA IS REFINING THE USE OF CONSTRUCTED WETLANDS. THESE SHALLOW IMPOUNDMENTS PLANTED TO SELECTED AQUATIC PLANTS HAVE THE CAPABILITY OF NATURALLY MODERATING ACID WATERS AND SIGNIFICANTLY REDUCING IRON AND MANGANESE CONCENTRATIONS. WE HAVE ALSO SUCCESSFULLY TREATED RUNOFF FROM ASH POND DISPOSAL SITES AT TVA COAL-FIRED ELECTRICAL GENERATING PLANTS AND CONSTRUCTED THREE MUNICIPAL WASTE TREATMENT DEMONSTRATIONS IN WEST KENTUCKY.

(SLIDE NO. 14) TVA USES THESE COST-EFFECTIVE RECLAMATION PRACTICES IN TREATING OTHER ABANDONED MINE LANDS THROUGHOUT THE VALLEY. THIS INCLUDES RECLAIMING ABANDONED MICA, FELDSPAR AND CLAY MINES

(SLIDE NO. 15) IN WESTERN NORTH CAROLINA AND

(SLIDE NO. 16) RECLAIMING ABANDONED COAL LANDS

(SLIDE NO. 17) IN NORTHWEST ALABAMA.

TVA SUPPORTS THE RECLAMATION OF ABANDONED MINES. IN VIEW OF THE MAGNITUDE OF THE JOB REQUIRED TO RESOLVE THE NATIONAL ABANDONED MINED LAND NEEDS, TVA RECOMMENDS THAT THE ABANDONED MINE FEE AND ASSOCIATED

RECLAMATION PROGRAM UNDER TITLE IV, PROVISIONS OF P. L. 95-87 (THE SURFACE MINING CONTROL AND RECLAMATION ACT OF 1977) BE EXTENDED. WE ALSO SUGGEST THAT ABANDONED MINE LAND FEES BE PLACED IN AN INTEREST BEARING ACCOUNT WHEREBY THE ACCRUED INTEREST CAN ALSO BE APPLIED TOWARD FUTURE RECLAMATION. ONLY WHEN THESE DERELICT LANDS ARE PROPERLY RECLAIMED AND PRODUCTIVITY IS RESTORED CAN THEY PROVIDE BENEFICIAL SERVICE TO SOCIETY.

NUMBER OF COAL CONTRACTS CONTAINING RECLAMATION PROVISIONS
FROM 1965 TO NOVEMBER 30, 1978
(STATUS AS OF SEPTEMBER 30, 1987)

Coalfields	Term and Emergency			Spot			Total
	Active	Inactive	Released	Active	Inactive	Released	
Alabama	-	5	3	-	23	99	130
Arkansas	-	-	-	-	-	2	2
Georgia	-	-	-	-	-	5	5
Illinois	-	2	2	-	-	4	8
Indiana	-	-	6	-	1	49	56
East Kentucky	1	1	30	-	6	168	206
West Kentucky	2	3	87	-	13	283	388
Montana	-	-	-	-	2	-	2
Ohio	1	-	2	-	7	15	25
Oklahoma	-	-	1	-	-	13	14
Pennsylvania	-	-	-	-	2	14	16
East Tennessee	-	3	144	-	58	516	721
Southeast Tennessee	-	-	26	-	15	201	242
Virginia	-	-	16	-	-	174	190
West Virginia	1	-	-	-	-	6	7
Total	5	14	317	-	127	1,549	2,012

Released Surface Mine contracts:

Total Term and Emergency	317	Acres Reclaimed	37,842*
Total Spot	1,549	Acres Reclaimed	3,921
Total	1,866		46,763

*An estimated additional 5,000 acres have been reclaimed but not yet released.

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

NOV 30 1987

The Honorable Jim Sasser
Chairman
Subcommittee on Government Efficiency,
  Federalism, and the District of Columbia
Committee on Governmental Affairs
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

Thank you for your October 28 letter to Joan Habib. We appreciate this opportunity to offer our views on the questions you raised about abandoned mine land reclamation. Our specific comments are enclosed.

We trust these comments will be helpful to you in your efforts to encourage more reclamation across the Nation. Please let us know if you have any additional questions. As you know TVA has long been concerned with the need to revitalize land and water resources damaged by past mining practices. TVA stands ready to assist in accelerating the reclamation of these valuable resources.

Sincerely,

W. F. Willis
General Manager

Enclosure

TVA Responses to Follow-up Questions
by Senator Sasser After the
October 23, 1987 Abandoned Mine Land Fund
Oversight Hearing Before the Subcommittee on
Government Efficiency, Federalism, and
the District of Columbia

Question 1

A. Would TVA be able to expand its reclamation efforts if it was able to reach cooperative agreements with the Office of Surface Mining?

Response

Given necessary financial and programmatic support from the Office of Surface Mining Reclamation and Enforcement (OSMRE), TVA is both capable and willing to undertake additional reclamation, particularly in the States of Tennessee and Georgia where only limited abandoned coal mine reclamation efforts are underway. TVA presently has a Memorandum of Understanding with OSMRE which provides a mechanism for such interagency cooperation. If these lands are ever to be reclaimed, it will take the combined efforts of all of us to restore these lands to a productive state. Based on TVA's on-the-ground experiences and the magnitude of the remaining problems, we would welcome the opportunity to meet with you and OSMRE to explore ways in which TVA could help OSMRE solve these critical land and water quality problems.

B. How would TVA feel about providing incentives in order to encourage remining of previously abandoned mine sites?

Response

TVA has a statutory responsibility to provide electric power at the lowest feasible rates. In light of that responsibility, TVA has adhered to the position that it would use its coal purchasing activities to foster programs not directly benefiting the power program only when able to do so without adding to the cost of coal purchases. Consistent with that thinking and our efforts to hold down coal costs, the use of direct incentives would require a source of funding that would not increase coal costs.

It should also be noted that many producers offering coal to TVA are already remining abandoned mines. A recent review revealed that in portions of the region the percentage of sites being remined was in the range of 65 percent. This finding corresponds with a similar review of mine sites being mined by TVA term coal suppliers.

Question 2

A. Have you been satisfied with OSM's mine reclamation performance in the TVA region?

Response

When TVA was supporting Federal reclamation legislation in the 1970s, including P.L. 95-87, we had every hope that the abandoned mine land issue would be resolved in a timely manner. Unfortunately, this has not been the case. This inertia in the abandoned mine reclamation program has been caused in part by the magnitude of the National problem, delays by States in obtaining "primacy," and the forfeiture of primacy by the State of Tennessee in October 1984 and the attendant revocation of its federally supported abandoned mine land program.

While it would have been encouraging to see many more lands reclaimed in this initial 10-year period, at least substantive programs are now in place and moving ahead in most Valley coal producing States. We are disappointed, however, that only limited efforts are underway in Tennessee and Georgia. As noted in the response to Question 1A, there must be some way in which abandoned mine reclamation programs can move ahead in these States, and TVA stands ready to assist.

Question 3

A. Does TVA have information on how many communities in the TVA region have problems with their water supplies as a result of abandoned mines? If so, would you provide detailed information about these problems to the Subcommittee?

Response

In general, detailed information regarding mining impacts on water supplies for many of the region's communities has not been communicated to TVA by these communities. What specific information TVA does possess is described below. TVA recognizes that mining impacts can be a problem in both coal and noncoal abandoned mine land areas. In fact, some of TVA's reclamation experience in recent years has involved ameliorating impacts to public water supplies in such areas as Bear Creek, Alabama; Greeneville and Jonesboro, Tennessee; and Big Creek Utility District in Grundy County, Tennessee.

As an aid in correcting these water problems, TVA is refining the use of constructed wetlands to treat acid mine drainage and other water quality problems. This technology appears to offer a low-cost alternative to the continuous chemical treatment of mine-related water quality problems, as well as enhancing the local environment.

One of the earliest reclamation projects intended to remedy water quality problems, the Big Creek Project, was undertaken by OSMRE shortly after it came into existence. This reclamation was designed to alleviate reservoir water quality problems caused by acid mine drainage from surface and underground mines in the headwaters of Ranger Creek. These affected waters were shown to be adversely impacting the Big Creek Utility District's water supply reservoir in Grundy County, Tennessee. The State, TVA, and OSMRE staff all participated in this reclamation effort. As part of the reclamation work, impounded acid waters were treated and drained. The areas were then graded and revegetated to eliminate this impact on the public water supply. While significant improvements were achieved, we understand that a follow-up assessment of several mine sites may be advisable to determine the need for remedial treatments and to evaluate whether constructed wetlands may be used to further improve water quality of the district's water supply.

Through your efforts and agreements this past year with OSMRE, the State of Tennessee is now proceeding with reclamation of additional minesites in Campbell County, Tennessee, which impact the water supply for the City of LaFollette. This should further reduce the water quality problems in this area.

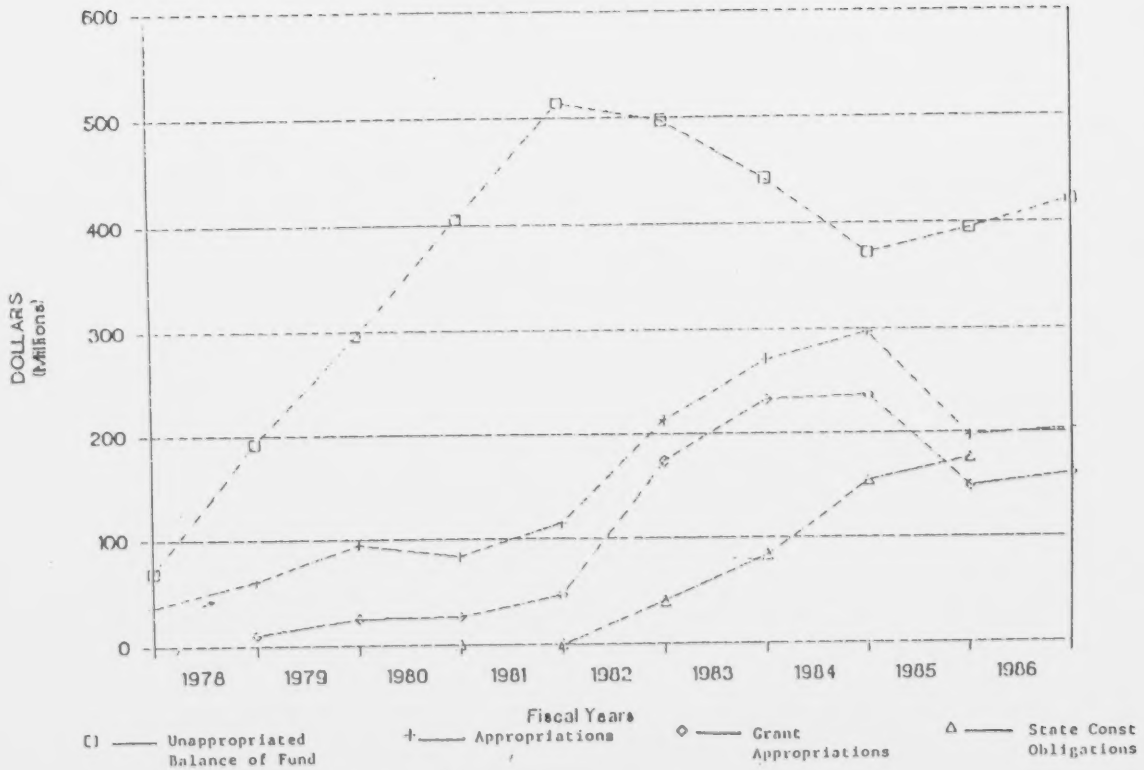
From 1980 to 1985 TVA, in cooperation with local, State, and Federal agencies, landowners, and the mining industry, reclaimed abandoned mica, feldspar, and clay mines in the headwaters of the Nolichucky River in western North Carolina. Sediments from these mining activities adversely affect water supplies for the downstream cities of Jonesboro and Greeneville, Tennessee, along with TVA's Nolichucky Reservoir. We are pleased to report that the 600 identified acres of abandoned mines are now successfully reclaimed and substantial volumes of sediments are no longer moving into the river.

In 1984 TVA, in cooperation with the State of Tennessee and the United States Geological Survey, conducted an evaluation of drought-related impacts on municipal and major industrial water systems in Tennessee. During the study, representatives of these systems were asked to identify water quality problems. Respondants for thirty-three public water supply systems reported experiencing high turbidity following heavy rainfall. High turbidity is a common impact associated with runoff from eroding mine lands. Several of these systems are located in the eastern and middle portions of the State where abandoned mine lands are found.

TVA suspects that many more instances of acid mine drainage problems occur in association with Priority 3 environmental categories of abandoned mine lands throughout the region's coal fields. Unfortunately, these lands may never be reclaimed unless the existing national program is extended or participation broadened.

CHART 1

AML FUND STATUS



NOTE: State construction obligation data for FY 1987 are incomplete. Projected construction obligations will be about $400 million by the end of the fiscal year; leaving an unobligated construction balance of $400 million.

CHART 2

AML COLLECTIONS VERSUS AWARDS
AS OF 3-31-87

	TOTAL COLLECTIONS	TOTAL AWARDS	PERCENTAGE
IOWA	1,586,955	16,765,002	1,060%
KANSAS	3,828,119	6,793,658	180%
KENTUCKY	316,703,935	176,175,185	50%
WEST VIRGINIA	202,311,701	144,232,964	70%
WYOMING	336,850,868	128,170,309	40%

CHART 3

ILLUSTRATIVE ABANDONED MINE LAND FATALITIES

1. DROWNINGS

8-YEAR OLD BOY, HAZELTON, PA, IN DRAINAGE PIT, 1987
30-YEAR OLD MAN, GRUETLI, TN, IN STRIP PIT, 1987
2 PEOPLE, OLLIS CREEK, TN, CAR INTO WATER-FILLED PIT

2. FALLS TO DEATH

BOY 4-WHEELING, POTTSVILLE, PA, ON WASTE PILE, 1983
BOY ON MOTORCYCLE, OLLIS CREEK, TN, HIGHWALL FALL

3. DEATH FROM POISON GASES

WOMAN, WAR, WEST VIRGINIA, COAL REFUSE FIRE, 1985
(HER DAUGHTER WAS BRAIN DAMAGED)

DEPARTMENT of the INTERIOR
news release

OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT

For release May 29, 1987 — Dick Leonard (202) 343-4719

INTERIOR UNVEILS PLAN TO RECLAIM ABANDONED COAL MINES IN NATIONAL PARKS IN PA., TENN., KY., AND W.VA.

The Department of the Interior's Office of Surface Mining Reclamation and Enforcement (OSMRE) and the National Park Service (NPS) have joined forces to reclaim abandoned coal mines on lands now part of the National Park System.

A five-year, million-dollar plan was unveiled today to reclaim abandoned coal mines at the Friendship Hill National Historic Site in Pennsylvania, the Big South Fork National River Recreation Area in Tennessee and Kentucky, and the New River Gorge National River in West Virginia.

Secretary of the Interior Don Hodel said the plan will enhance the natural beauty of the parks, and will increase the safety of park visitors in reclaimed areas within the parks.

"In addition to our long-standing policy of not allowing mining activities in the National Parks, we are pleased we also can reclaim some abandoned mined lands that have been added to the National Park System," Hodel said.

Coal mines in all three areas were abandoned before the 1977 surface mining law was enacted and before Friendship Hill, Big South Fork and New River were designated as parts of the National Park System.

The reclamation plan was jointly announced by Directors Jed D. Christensen of OSMRE and William Penn Mott of NPS. The two Interior agency heads signed a formal agreement to work together on the projects.

"These scenic and historic park areas are an important part of our national heritage," Mott said. "The mine reclamation will improve the park experience for visitors and restore precious land and water resources in these parks."

The first reclamation work in the parks is scheduled for the New River Gorge this fall. The project, along a historical hiking trail near Fayetteville, W.Va., involves closing mine openings, reconstructing a mine drainage system to combat slide and erosion problems, and disposing of concrete foundations and a coal loading structure. The site is the Kay Moor No. 1 coal complex, last mined in 1962.

"A significant feature of this initiative involves citizen volunteer efforts to complement work that can be done with federal reclamation funds," Christensen explained. "The volunteer dimension is a creative example of what can be done through the national 'Take Pride in America' program, aimed at involving all Americans in the care and stewardship of our Nation's outdoor heritage."

(more)

The scenic and powerful New River, one of the oldest rivers in the world, is popular with white water enthusiasts. It flows north from the headwaters in the mountains of North Carolina through Virginia to its confluence with the Gauley River in West Virginia.

Congress designated 50 miles of the river from Hinton to Fayetteville in West Virginia as the New River Gorge National River in 1978. The NPS administers 62,000 acres along the river corridor.

The Big South Fork of the Cumberland River was designated a National River and Recreation Area in 1974. The area, about two-thirds in Tennessee and one-third in Kentucky, covers 122,960 acres including 90 miles of stream.

The 674-acre Friendship Hill National Historic Site on the Monongahela River near Point Marion, Pa., was authorized by Congress in 1978. The heavily mined Friendship Hill is the site of the home of Albert Gallatin, Secretary of the Treasury under Presidents Jefferson and Madison. The Gallatin mansion, built in 1789 on what then was the edge of the country's western frontier, is undergoing restoration.

--DOI--

Internal Revenue Service

District
Director

Department of the Treasury

DPN 536-6-2
230 S. Dearborn St., Chicago, Illinois 60604

Person to Contact: Donald J. Sniezek

Telephone Number: (312) 886-9644

Refer Reply to: E:CEB2:1212:DJS

Date: October 6, 1987

Mr. Dick Juntunen
Chief Abandon Mine Reclamation
Dept. of State Lands
Capital Station
Helena, MT 59620

RECEIVED
OCT 09 1987
STATE LANDS

Dear Mr. Juntunen:

This correspondence is in reference to the August 3, 1987 request for information. To date no formal response has been received from your department.

The Information Gathering Project being conducted by Department of Treasury is currently under progress using the limited sources of data that have already been obtained. Your department's contribution would greatly enhance the completeness of our efforts.

Any cooperation that you could extend in processing the initial request would be greatly appreciated.

If you have any questions, please contact me at the above number. Also, please note the new response address.

Sincerely,

Donald J. Sniezek
Mining Engineer

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

JAN 29 1987

Dear Sir/Madam:

On July 10, 1986, the Office of Surface Mining Reclamation and Enforcement (OSMRE) distributed for comment a draft study entitled "Encouraging Abandoned Mine Land Reclamation via Remining: A Federal, State and Industry Initiative." Public comments were sought on the draft study and a public meeting was held on September 23, 1986 to obtain additional views on the initiatives discussed. Following the public meeting and comment period, OSMRE evaluated the draft initiatives in light of the comments and recommendations received. Two specific groupings of initiatives were identified. The first group contained those which required no additional action by OSMRE and could be implemented immediately by the States. The second set of initiatives were those which required further study and analysis before detailed proposals could be developed and considered for adoption by OSMRE.

Initiatives which OSMRE believes States can implement through modification of approved State programs cover water quality; topsoil; revegetation; reclamation to satisfy civil penalties; approximate original contour variances; and data management systems. Several of these initiatives are presently addressed in the existing Federal regulations, although approved State programs in many States contain standards which may not afford the flexibility available in the Federal regulations. All six initiatives, however, may be implemented through modifications to the approved State programs, and several States have shown interest in incorporating modified permitting and performance standards to provide incentives for remining operations. These six initiatives are as follows:

Water Quality: A major deterrent to remining has been industry's reluctance to accept liability for preexisting pollutional discharges. After several years of effort, the State of Pennsylvania was successful in obtaining both the Environmental Protection Agency (EPA) and OSMRE approval of modified water quality standards for remining operations. The EPA determined that its coal mining point source category effluent limitation guidelines, set forth at 40 CFR Part 434, do not apply to pre-existing discharges which are not encountered by a remining operation. The effluent limitations for unencountered discharges will be based on the application of "best professional judgment" (BPJ) of the best technology economically achievable on a case-by-case basis under section 402(a)(1) of the Clean Water Act. The operator is required to satisfy the specified effluent limitations upon commencement of the

remining activities and during reclamation operations. Using the EPJ approach, all environmental improvements relating to remining must be considered in determining the effluent limitations.

OSMRE will assist any State wishing to develop program amendments in this area. However, under section 503(b) of Public Law 95-87, OSMRE must obtain the concurrence of the EPA for any program amendments involving effluent standards prior to final approval and implementation.

Topsoil: Most areas to be remined have little or no usable topsoil since these materials were destroyed or contaminated by the previous mining operation. The Federal topsoil regulations at 30 CFR 779.21, 780.18(b)(4) (permitting) and 30 CFR 816.22/817.22 (performance standards) allow the operator to use selected overburden materials as a supplement or substitute for topsoil, particularly where insufficient or poor quality topsoil exists. The operator provides results of field trials to demonstrate to the regulatory authority that the resulting soil medium is equal to or more suitable for sustaining vegetation then the existing topsoil and the resulting soil medium is the best available in the permit area to support revegetation. The specific analyses, trials and tests required for the demonstration are determined by the regulatory authority. Through the application of existing Federal regulations which allow for topsoil substitution, we believe that the unique problems related to remining operations can be addressed by the regulatory authority.

Revegetation: Many areas to be remined are poorly vegetated and pose severe constraints to plant growth because of acidity, toxicity, salinity or other factors. The Federal revegetation regulations concerning revegetation are contained in 30 CFR 779.19/783.19 (permitting) and 816.116/817.116 (performance standards). The revegetation standards for success for areas previously disturbed by mining that were not reclaimed to the Federal standards and that are remined or otherwise disturbed by surface coal mining operations require the permittee, at a minimum, to have a vegetative ground cover not less than the ground cover existing before redisturbance and that it be adequate to control erosion. Thus, revegetation success standards can be established on a case-by-case basis for areas to be remined within the existing Federal regulatory framework.

Reclamation to Satisfy Civil Penalties: The concept of reclamation of an abandoned mine land (AML) site in lieu of or to satisfy civil penalties has been practiced by several States for some time with success. Several States are continuing to experiment with this concept at the present time. Under this approach the regulatory authority accepts performance of reclamation work on AML sites in an amount at least equal to the civil penalty assessment in lieu of the penalty. Most States do not have specific statutory authority to accept AML reclamation as civil penalty payment; however, OSMRE believes this option has the potential for satisfying civil penalty obligations which encourages reclamation of abandoned mine land sites. OSMRE encourages application of this concept and will consider individual State initiatives as they are submitted. Any program proposal of this type must, as a minimum, identify the

categories of sites that qualify for reclamation under the program; specify the criteria and procedures for determining the dollar value for the reclamation work; contain a plan for evaluating the performance of the reclamation work; contain time frames for completion of the reclamation work; and specify the recourse available to the State should the reclamation work not meet established standards or not be completed.

Approximate Original Contour (AOC) Variances: Another characteristic typical of remining sites is the lack of availability of sufficient spoil to return the site to Approximate Original Contour. This situation is addressed in the Federal backfilling and grading regulations at 30 CFR 816.106/817.106. Those regulations allow for a variance from AOC for remining sites where it is demonstrated to the regulatory authority, in writing, that there is insufficient spoil to completely eliminate the highwall. General guidance with respect to highwall remnant stability and covering of the coal seam are also provided in this section.

Data Sources: Several data management sources are presently available to both the regulatory authority and industry. The United States Geological Survey (USGS) Water Resources Division has and will continue to provide assistance with respect to water quality data both to OSMRE and to States on a cooperative agreement basis. USGS programs with particular relevance to remining include the National Water Quality Assessment (NAWQA) program and the National Coal Resources Data System (NCRDS). Under the NAWQA the potential exists to fashion pilot studies to assess water quality in AML locations. It may also be possible under this system to merge water quality data sets with chemical data sets collected during the permitting process. This data could serve as a baseline to evaluate further mining or reclamation.

The National Coal Resources Data System (NCRDS) also is being used by OSMRE and USGS to store geologic and other coal data. This system provides on-line access to a common data base derived from a multitude of sources. The NCRDS contains published resource and chemical data on an aerial basis and can also store, retrieve, and manipulate basic point-source coal data.

In addition, the USGS is presently cooperating with States to map previously mined areas and available coal on a quadrangle scale. The data, placed on a contour map, will allow rapid and accurate reserve estimates in areas which have been previously mined.

OSMRE is continuing to explore several initiatives identified in the draft study to determine what actions should be taken to enhance reclamation through remining. These initiatives fall into the following areas:

Reclamation with excess spoil
Bond waiver and bond credits
Separate regulations covering reprocessing
Alternative sediment control measures.

OSMRE will continue to promote the cooperation of State regulatory authorities, industry and the environmental community in the identification and evaluation of additional initiatives which may provide incentive for the reclamation of abandoned mine lands through remining.

I will keep you informed of our efforts on the remining initiative. Should you have any questions, please contact Mr. Raymond E. Aufmuth at (202) 343-5843.

Sincerely,

Jed D. Christensen

Director

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

APR 14 1987

In Reply
Refer To:
4151
REG 1

Dear Sir/Madam:

On January 29, 1987, the Office of Surface Mining Reclamation and Enforcement (OSMRE) distributed a letter which informed you of our efforts and findings concerning initiatives related to remining activities. This status report followed the distribution in July 1986 of a draft study entitled "Encouraging Abandoned Mine Land Reclamation via Remining: A Federal, State and Industry Initiative."

The January 29, 1987 status letter focused on initiatives which OSMRE believed States could implement through modification of approved State programs and covered the following subjects: water quality; topsoil; revegetation; reclamation to satisfy civil penalties; approximate original contour variances; and data management systems.

OSMRE has now completed its evaluation of the remaining initiatives identified in both the draft study and by commenters. These initiatives and OSMRE findings and planned actions are discussed below.

Disposal of Excess Spoil on Preexisting Benches: The Federal regulations at 30 CFR 816.74/817.74 allow, with the approval of the regulatory authority, the disposal of excess spoil through placement on preexisting benches provided that standards set forth in 30 CFR 816.71/817.71 are met. These standards contain the general requirements for the disposal of excess spoil. Based on the draft initiatives and comments received, OSMRE has reviewed these regulations and has concluded that excess spoil, when placed on preexisting benches, is similar to backfilling and grading a highwall and bench and could be regulated using the general backfilling and grading requirements in 30 CFR 816.102/817.102, in lieu of the "excess spoil" standards while maintaining the same environmental and safety standards. Therefore, OSMRE will initiate rulemaking action to propose to modify the existing regulations concerning the placement of excess spoil on preexisting benches.

Material for Use in Government Financed Construction: OSMRE believes that under certain circumstances material, not required to meet AOC and other reclamation requirements, may be transferred and used in conjunction with a Government financed construction project as that term is defined in 30 CFR 707.5. Such a transfer could be used for example to reduce highway

construction costs or to further land reclamation efforts, and therefore could be in accordance with the purposes specified in sections 102(f) and (h) of the Surface Mining Control and Reclamation Act (SMCRA). OSMRE will assist those States desiring to amend their permanent regulatory programs to accommodate this use.

Reprocessing of Coal Mine Wastes: Because of advancing mining technology, the unique circumstances associated with coal mine waste sites, and the increased interest in the remining and processing of coal mine waste to remove the marketable coal, OSMRE has given careful consideration to this initiative. After a detailed review of the comments, OSMRE has concluded that many existing regulations do not give adequate consideration to the mining or reprocessing of coal mine wastes. OSMRE will initiate rulemaking action to propose to establish a new section in the existing regulations on "Special Categories of Mining" to address the unique requirements related to the reprocessing of coal waste.

This proposed part would encompass a definition of "reprocessing" and the modification of existing permitting and performance standards to take into consideration the unique circumstances and requirements for reprocessing coal waste to identify the minimum requirements for this type of mining activity.

Mining Within Restricted Zones/Reduce or Eliminate the AML Fee: Each of these initiatives would require legislative amendments to the SMCRA in order to be implemented. Authorizing remining activities within restricted zones as identified in section 522(e)(5) of SMCRA and reduction or waiver of the abandoned mine fee as required by section 402(a) of SMCRA for remining activities have potential for encouraging remining operations. These initiatives are being reviewed further to determine the merits and impact of proposing amendments to SMCRA.

Bond Waivers/Credits: After extensive review and analysis with respect to implementation of bond waivers and/or credits, OSMRE has determined that implementation cannot be accomplished under section 509(a) of SMCRA. Section 509(a) requires in part that "the bond shall be sufficient to assure the completion of the reclamation plan if the work had to be performed by the regulatory authority in the event of forfeiture and in no case shall the bond for the entire area under one permit be less than $10,000."

OSMRE is developing another initiative which will address the problems associated with bonding in general. A discussion of this initiative and the factors affecting bond availability, adequacy, etc., will be addressed in a separate status letter.

This does not, however, preclude the States from exploring alternative bonding programs that include provisions specific to remining operations to be implemented at the State level in accordance with section 509(c) of SMCRA. OSMRE will assist any State wishing to develop program amendments with respect to bonding and will consider individual State initiatives as they are submitted.

Alternative Sediment Control Structures: The use of alternative sediment control structures, in lieu of siltation structures, was identified in 1983 as a potential incentive applicable to all surface coal mining operations. At that time, OSMRE worked with the Mining and Reclamation Council of America (MARC) in developing a program to explore the use of and development of documentation for alternative sediment control structures. Since that time the U.S. District Court for the District of Columbia remanded the Federal regulations at 30 CFR 816.46(b)(2)/817.46(b)(2) which require the use of siltation structures. OSMRE suspended these regulations on November 20, 1986, and provided guidance on how to address siltation structures in light of the court's remand and subsequent suspension of the rules. OSMRE recognizes that the use of alternative sediment control structures may be appropriate on a case-by-case basis in States with primacy that have a definition of the phrase "best technology currently available" that will allow the use of alternative sediment control structures. However, most State programs still require all runoff to pass through a siltation structure. OSMRE also encourages States to continue to cooperate in activities to develop a technical data base on which to judge the effectiveness of alternative sedimentation control structures.

Acid Mine Drainage: Several commenters suggested that OSMRE develop an Acid Mine Drainage (AMD) handbook for use in remining operations. Such a handbook has already been developed by the Surface Mine Drainage Task Force sponsored by the West Virginia Department of Natural Resources (DNR). The initial handbook containing suggested guidelines was published in 1980 and received widespread use. In 1981 the West Virginia DNR established the Acid Mine Drainage Technical Advisory Committee for monitoring research in acid mine drainage control concepts. This effort and research has resulted in an update to the "guidelines" which address both concepts and techniques. This revised document entitled "Review of Procedures for Surface Mining and Reclamation in Areas with Acid Producing Materials" will be available in late April 1987. Requests for this publication should be forwarded to the Energy Research Center, 258 Stewart Street, Morgantown, West Virginia 26506.

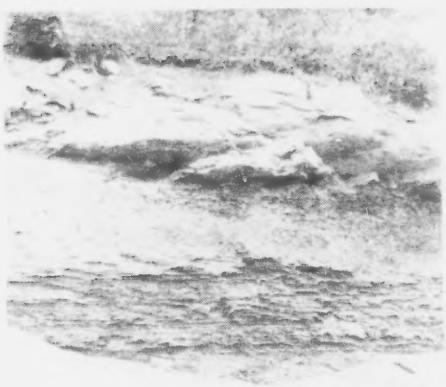
Clean Water Act Amendments: H.R. 1, the Clean Water Act reauthorization bill, became law on February 4, 1987. The new law, P.L. 100-4, contains a provision that allows State regulatory authorities to issue permits for remining of previously mined sites, requiring use of best available technologies for water quality improvement. Section 301 of the new law has been amended by adding a section on "Modified Permit for Coal Remining Operations." This amendment was sponsored by Representative Rahall (West Virginia) and strongly supported by Representative Clinger (Pennsylvania).

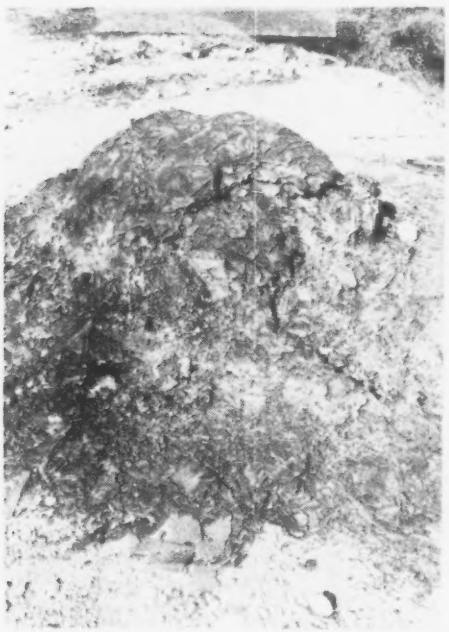
Under the new law, the remining operator is responsible for modified values of those discharges, applying the best technology economically available on a case-by-case basis, using best professional judgment to set the specific modified effluent limits. The operator must also show, prior to permit approval, the potential for water quality improvement. Final reclamation of the site must meet all other applicable provisions of SMCRA.

We greatly appreciate your interest in the remining initiatives. OSMRE will continue to promote the cooperation of State regulatory authorities, industry and the environmental community in the identification and evaluation of other initiatives which may provide incentives for the reclamation of abandoned mine lands through remining.

Sincerely,

Acting Director





The Abandoned Mine Land Program

Table of Contents

2 Introduction

5 The Surface Mining Control and Reclamation Act
- Program Administration
- Reclamation of Non-Coal Mines
- Emergency Program
- Rural Abandoned Mine Program
- Small Operator Assistance Program
- Mine Subsidence Insurance Fund
- Reclamation in Non-Program States

9 Repairing the Land
- Problems Associated With Abandoned Mines
- The Eastern Region
- The Interior Region
- The Western Region
- The Emergency Program
- Research and Development

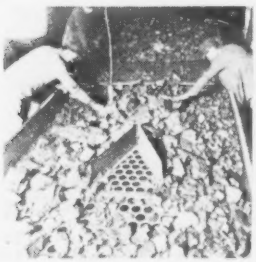
23 Ten Years of Progress

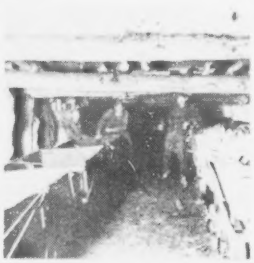
28 List of OSMRE and AML Offices

Written by Kim St. Aubin & Sue Massie. Edited by Kim St. Aubin.

Published May 1987 by the Association of Abandoned Mined Land Programs, 100 North First Street, Springfield, Illinois 62701.

Introduction





"The peculiar genius of each continent, each river valley, the rugged mountains, the placid lakes, all call for relief from the constant burden of exploitation."
Vine Victor Deloria, Jr.

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."
Aldo Leopold

The first verifiable use of coal in this country dates back to the eleventh century when Native Americans, specifically the Navajo and Hopi tribes, used coal-generated fire to make pottery. Later reports by explorers cited instances where Indians used coal both as fuel and barter.[1]

Until the mid-1700s, coal was easily found and extracted with hand tools from outcroppings located along the bluffs and banks of the country's rivers. As the population grew and the demand for coal energy increased, however, new techniques to supply it had to be developed.[2]

Underground or shaft mining gradually developed during the eighteenth century. Miners using picks and shovels excavated coal beneath the ground by digging a shaft to

reach the seam. For the first time, coal was being produced in large quantities, sufficient to provide for its commercial use. With the development of the steam locomotive and ensuing expansion of the railroad system in the 1830's — thereby providing a means of transporting the coal from primarily rural mines to industrial centers and cities — coal began to surpass wood as America's primary fuel source.[3]

But underground mining had its drawbacks. In addition to the ever-present threat of mine gas, cave-ins, and explosions, there was the financial disadvantage of having to leave intact at least 30 percent of the coal seam for roof support.

Then, in 1866, teams of horses pulling scrapers in Illinois commercially strip-mined land for the first time by removing the soil and rock overlying the coal seam. To be certain, there were fewer safety hazards for the coal miners. From an economic perspective, up to 90 percent of a coal seam could be mined with no threat of a roof collapse.

In 1911, the advent of the self-propelled steam shovel for removing overburden paved the

"The Nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.
Theodore Roosevelt, 1910

"Only a few inches of topsoil separate us from death. Those few miraculous inches give us most of our food, our clothes, our houses, our cocktails and silverware and radios, and the books we read and the shoes we wear and the cool water we drink. Without topsoil and trees on the hillside there could not long be factories in the valley. Without the dogwood and the shadebush that blossom here tonight there could not long be lights in the windows of the city."
Edwin L. Peterson

way for efficient surface mining of shallow coal seams. By the 1930s, electricity was powering much bigger shovels with greater production capabilities. Since 1983, surface mining has accounted for about 60 percent of total U.S. coal production.[4]

During these years of rapid technological advancement, little attention was being paid to the serious side effects of coal mining. By 1977, more than one million acres of land would be disturbed, leaving behind open shafts and toxic, polluting refuse piles and spoil ridges. Other problems, including subsidence, gas leaks, mine fires, and landslides, developed as well.

Early in the twentieth century, many farmers, conservationists, and others had seen the writing on the wall. Long before environmental concerns had organized into a cohesive group, these individuals had urged regulation of the mining industry, arguing that surface mining and the surface effects of underground mining were rendering a great deal of the country's land useless.

The absence of effective and consistent state regulations ultimately led to the enactment of a comprehensive federal law aimed at regulating all future coal mining activities. The Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87) set detailed mining and reclamation standards for coal operators. The act also established a reclamation fund to finance restoration of land that had been mined and abandoned prior to August 3, 1977 and for which no one is legally responsible.

This report commemorates the first ten years of the Surface Mining Control and Reclamation Act (SMCRA) and provides a summary of abandoned mine reclamation accomplishments during this time. It was produced by the Association of Abandoned Mine Land Programs — a group of 28 states and tribes having eligible abandoned mine sites — with support from the federal Office of Surface Mining Reclamation and Enforcement which manages the reclamation fund and oversees state/tribal reclamation activities, in addition to performing emergency and other reclamation projects.

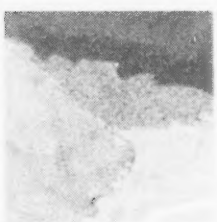
1 Kristina Lindbergh and Barry Provorse, *Coal: A Contemporary Energy Story* (Scribe Publishing Corporation, 1977), 22.

2 Ibid.

3 Ibid., 26

4 U.S. Department of Justice, *Developing a Regulatory Bureaucracy: The Office of Surface Mining Reclamation and Enforcement* (National Institute of Justice, 1983), 6.

The Surface Mining Control and Reclamation Act



The Surface Mining Control and Reclamation Act of 1977 established national standards for coal mining and reclamation of affected areas. Additionally, it created the Abandoned Mine Land Program to complement these new requirements. The AML Program provided for the abatement of health and safety hazards and environmental problems on coal-mined lands that were abandoned prior to passage of the act and, therefore, had no responsibility for reclamation connected with them.

The act also set up a funding mechanism for abandoned mine reclamation. Namely, a tax on active coal production — to be collected from 1978 through 1992 — is levied at a rate of 35 cents per ton of surface-mined coal, 15 cents per ton of underground-mined coal, and 10 cents per ton of lignite coal. At least 50 percent of the monies collected within each state are returned to that state, provided it has a federally-approved AML Program and an approved program to regulate its active coal mining industry. The remainder of the fund is distributed as follows: up to twenty percent is available for transfer to the Secretary of Agriculture for funding of the Rural Adandoned Mine Program; up to 10 percent (but not to exceed $10 million) may be used to assist small coal mine operators; finally, the balance is spent at the Secretary of the Interior's discretion, primarily for emergency projects, federal program administration, federal reclamation projects, and additional funding to states and tribes.

While reclamation fees have been collected since 1978, most state AML programs were not approved until the early 1980s — a prerequisite to receiving grant monies. The lag was a result of the time it took states to develop plans for regulating their active coal mines (known as Title V authority) — a second requirement for obtaining AML funds.

Until states were able to meet these requirements and establish their AML programs, monies were provided to them through cooperative agreements with the Office of Surface Mining Reclamation and Enforcement. These agreements financed reclamation of high-priority projects. OSMRE addressed most abandoned mine emergencies (mine fires, gas leaks, subsidence cases, and landslides, for example) and undertook some reclamation projects directly.

Once states gained OSMRE approval of their reclamation programs and were granted regulatory authority, reclamation funds were distributed through grants rather than cooperative agreements. In addition to high-priority reclamation projects, usually those involving health and safety hazards, grant monies could be used to address environmental problems.

Each year, program states select reclamation projects from their inventories of eligible mines and submit construction grant requests to OSMRE for the necessary work. These grant requests include detailed descriptions of each project and the anticipated benefits of reclamation. OSMRE reviews the proposals and awards funds accordingly. The states also submit applications for administrative grants to fund program management expenses, design and engineering of projects, and contractual services. OSMRE, through its 13 field offices, then oversees the reclamation projects and expenditure of grant monies.

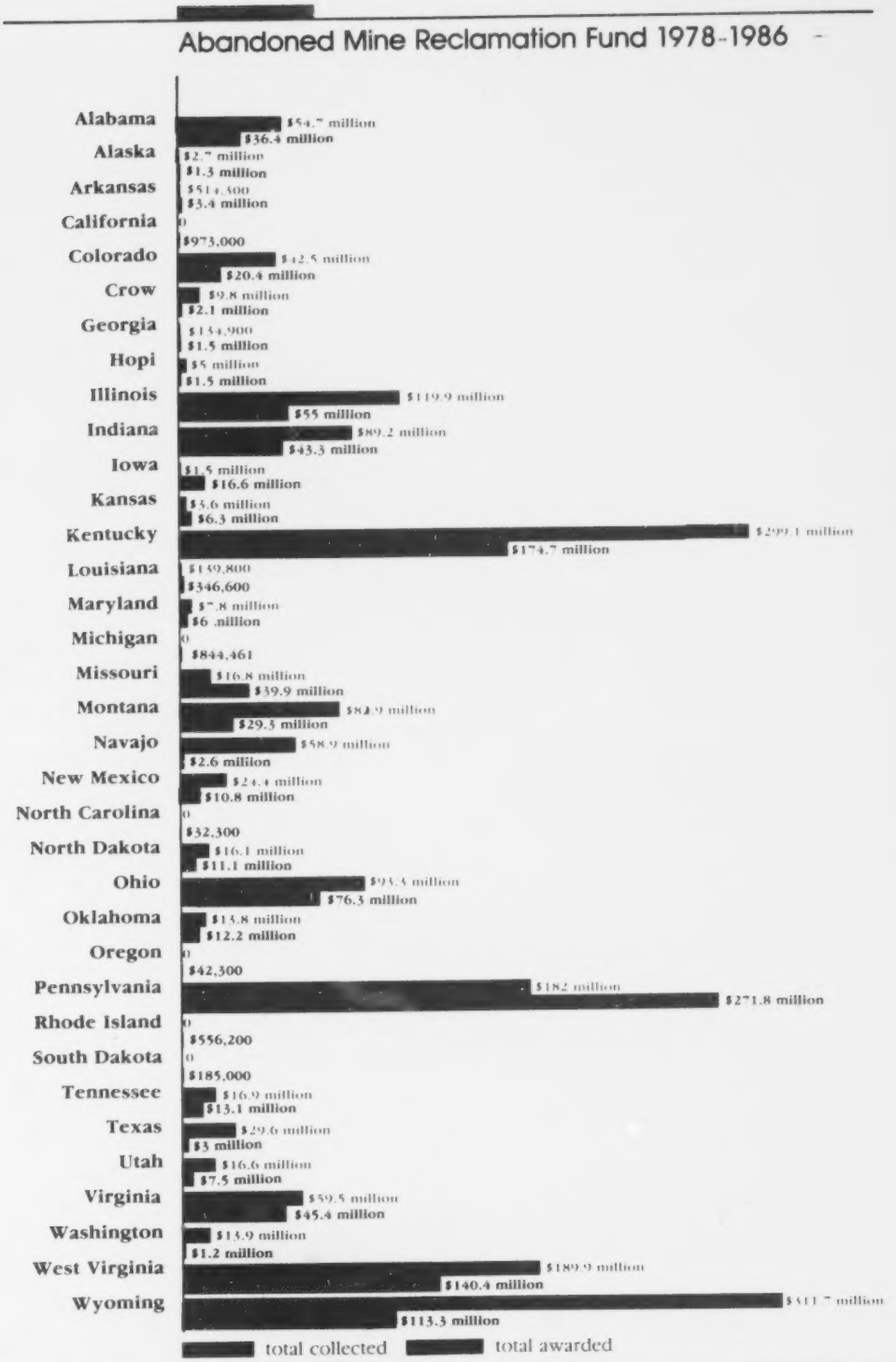
By the end of 1986, nearly $1.8 billion dollars had been collected through the Abandoned Mine Reclamation Fund, with more than $1 billion having been provided to the states for their reclamation efforts.

Reclamation of Non-Coal Mines

In some states, particularly in the west, problems stemming from non-coal mines are more severe than those caused by coal mines. OSMRE may approve the expenditure of AML monies to abate hazards on these lands where the states certify that threats to public health and safety exist. Environmental problems at non-coal mines may be addressed through the AML Program only after all abandoned coal mines in an individual state have been reclaimed

Emergency Program

In addition to the ongoing AML Program, SMCRA also provided for an Emergency Program. An emergency is defined as a problem related to an abandoned mine that occurs suddenly, is life-threatening, and demands immediate attention. Typically, emergencies include landslides, open shafts, refuse fires, gas leaks, and subsidence (which occurs when an underground mine settles or shifts).


Abandoned Mine Reclamation Fund 1978-1986
Alabama
$54.7 million
$36.4 million
Alaska
$2.7 million
$1.3 million
Arkansas
$514,300
$3.4 million
California
0
$973,000
Colorado
$42.5 million
$20.4 million
Crow
$9.8 million
$2.1 million
Georgia
$134,900
$1.5 million
Hopi
$5 million
$1.5 million
Illinois
$119.9 million
$55 million
Indiana
$89.2 million
$43.3 million
Iowa
$1.5 million
$16.6 million
Kansas
$3.6 million
$6.3 million
Kentucky
$299.1 million
$174.7 million
Louisiana
$139,800
$346,600
Maryland
$7.8 million
$6 million
Michigan
0
$844,461
Missouri
$16.8 million
$39.9 million
Montana
$82.9 million
$29.3 million
Navajo
$58.9 million
$2.6 million
New Mexico
$24.4 million
$10.8 million
North Carolina
0
$32,300
North Dakota
$16.1 million
$11.1 million
Ohio
$93.3 million
$76.3 million
Oklahoma
$13.8 million
$12.2 million
Oregon
0
$42,300
Pennsylvania
$182 million
$271.8 million
Rhode Island
0
$556,200
South Dakota
0
$185,000
Tennessee
$16.9 million
$13.1 million
Texas
$29.6 million
$3 million
Utah
$16.6 million
$7.5 million
Virginia
$59.5 million
$45.4 million
Washington
$13.9 million
$1.2 million
West Virginia
$189.9 million
$140.4 million
Wyoming
$311.7 million
$113.3 million
total collected
total awarded

Because public health, safety, and property can be seriously threatened by these emergencies, the capability for immediate response is critical. Reported emergencies are usually investigated within 24 hours.

Emergencies are addressed through either of OSMRE's two Field Operations Offices (in Pittsburgh, Pennsylvania and Denver, Colorado), or by states which have been granted authority to conduct their own emergency programs (Illinois, Arkansas, and Montana). By the end of September 1986, a total of $93.8 million had been spent to address 1,088 emergencies.

Rural Abandoned Mine Program

Congressional concern over rural landowners and residents resulted in the establishment of the Rural Abandoned Mine Program to be financed through the AML fund. The program — administered by the Soil Conservation Service in the Department of Agriculture — is primarily aimed at addressing health, safety, and environmental problems posed by surface mining operations in rural areas. More specifically, RAMP provides for the control and prevention of erosion and sedimentation from abandoned mines, and promotes the conservation and development of soil and water resources on unreclaimed mined land.

By the end of September, 1986, RAMP had received a total of $55.4 million for funding of 579 projects.

Small Operator Assistance Program

The Small Operator Assistance Program provides financial assistance to coal operators whose annual coal production totals less than 100,000 tons. Funds are provided to cover the cost of analyzing test borings and core samples, and for determining the hydrologic consequences of coal mining. So far, $62 million has been provided to this program.

Mine Subsidence Insurance

SMCRA provided for the use of AML funds to establish state coal mine subsidence insurance programs. States having approved AML programs can obtain up to $3 million of their state share reclamation funds to set up self-sustaining insurance programs aimed at addressing individual subsidence problems as they arise. In addition to being economical and effective, these permanent programs provide a means of abating problems that develop in the future, including those that will occur after AML funding expires.

At the time SMCRA was passed, three states (Illinois, Pennsylvania, and West Virginia) had already established successful subsidence insurance programs. Five other states are in the process of setting up such programs.

Reclamation For Non-program States/Tribes

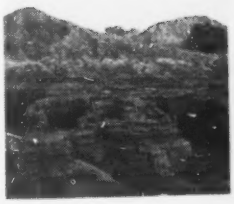
Three categories of states or tribes which have eligible abandoned mine sites do not operate AML programs. California, Massachusetts, Nevada, Idaho, Oregon, Rhode Island, Michigan, North Carolina, and South Dakota, for example, do not have an active coal mining industry and, therefore, do not maintain regulatory programs — a prerequisite to establishing an AML program. The second category is made up of those states which have both an active mining industry and eligible abandoned mines, but do not operate AML programs. In these states (Georgia, Washington, and Tennessee), OSMRE operates both the regulatory and AML programs. Finally, the Hopi, Crow, and Navajo tribes have been unable to establish AML programs because they have not been granted authority by Congress to operate regulatory programs.

For these non-program states and tribes, abandoned mine emergencies and reclamation projects are funded through the Secretary's discretionary share of the AML Fund.

Repairing the Land

Today, coal operators are required to reclaim their sites when mining is completed. That is, they must restore the land to a useful condition. But it was not always this way. Prior to passage of the Surface Mining Control and Reclamation Act of 1977, many mines were simply abandoned, leaving behind thousands of acres of scarred and useless land, land that posed significant safety hazards and environmental problems. The 1977 act also established the Abandoned Mine Land Reclamation Program to address problems caused by abandoned mines — those where operations ceased prior to 1977.

Through the AML Program, problems at old mines, including open or improperly filled shafts, dilapidated mine buildings and equipment, toxic mine refuse and drainage, landslides, mine fires, highwalls, gas leaks, and subsidence, are abated. Some of these problems can occur suddenly and may be life-threatening.



Refuse: *These two 60-foot gob piles near Bevier, Missouri are a major source of sedimentation and acid draining pollution to the surrounding area. Acid sediment clogs drainage systems, affecting nearby agricultural land.*

Shaft: *Typical of the many shafts that existed before 1977, this one near Beckley, West Virginia was water-filled and easily accessible until it was reclaimed in 1985.*

Mine Openings

A prevalent problem associated with abandoned mines, both coal and non-coal, is mine openings. Many of these openings consist only of a vertical hole in the ground, posing a serious hazard to hunters, hikers, and passers-by who may stumble into the shaft. Horizontal or sloped openings are less steep but no less hazardous. Because they provide easy access, curious adults or children may be lured inside the old mine where they can be overcome by poisonous gases and oxygen deficiencies. Acid mine drainage frequently flows out of horizontal and sloped openings while vertical shafts are often flooded. Many older openings are prone to collapse as well.

Vertical openings extend down through layers of soil and rock to the coal seam. While many of them are simple excavated openings, it was common practice to line the shafts with brick, concrete, or other masonry to increase stability. Often they contain fan housings, hoisting equipment, or other remnants of the mining operation.

Horizontal openings, frequently referred to as portals, entries, drifts, or adits, are located in above-drainage mines along hillsides where coal seams outcropped. Similarly, slope entries are angled shafts cut through overburden to intersect coal seams.

During reclamation, vertical shafts are generally filled with rock or on-site materials to near-surface level, covered with soil, and seeded. Occasionally, the shaft is sealed with concrete prior to covering. Horizontal openings and slope entries are usually filled with rock and sealed with concrete, stone, or iron bars.

More than 7,600 open or improperly-filled shafts, adits, and slopes have been addressed through the AML and Emergency Programs.

Mine Spoil and Refuse

Unreclaimed mine spoil and mine refuse frequently result in problems such as erosion, acid drainage, and sedimentation which destroy wildlife habitat and pollute thousands of acres of the country's land and water resources.

Spoil consists of the soil and rock overburden that is stripped off to expose the coal seam during a surface mining operation, and the noncoal material extracted during shaft excavation of an underground mine. Refuse is generated during the coal washing and cleaning process and is known as gob or culm when it is coarse; slurry when it is fine.

Prior to 1977, spoil and refuse were generally deposited in large piles with very steep slopes, making it impossible for vegetation to become rooted. Consequently, the piles were erosive. Sediments (refuse and spoil particles) frequently washed from the sites, impacting streams and clogging drainageways. Additonally, spoil and refuse materials were often high in pyrites which oxidize in the presence of air and water to form acid — acid toxic to plant and animal life. Acid drainage from these piles then flowed onto surrounding land and bodies of water, making them acidic as well.

Reclamation of spoil and refuse is usually aimed at halting acid production and erosion. Typically, the piles are graded to establish stable slopes and provide proper drainage patterns. The refuse or spoil may then be treated with limestone to neutralize acidity prior to being fertilized and seeded. When refuse is extremely acidic, it may be covered with upwards of one to two feet of soil before seeding.

To date, more than 42,000 acres of problem spoil and refuse have been reclaimed through the AML and Emergency Programs.

Landslides

Landslides are an extremely hazardous problem at many abandoned mines. When refuse or spoil materials deposited along steep terrains become saturated, or when natural soils on sharply inclined slopes are loosened by mine drainage, they become unstable and slide or flow, inundating everything in their path. Slides damage buildings and other development, impede traffic, impact streams, and destroy wildlife habitat.

During reclamation, the unstable materials are frequently relocated. If mine drainage is the source of the problem, it may be diverted to a less disruptive route. Occasionally, barrier walls are constructed to protect developed areas from an impending slide.

Since 1977, 451 landslides have been addressed through the AML and Emergency Programs.

Landslide: *A mud slide consisting of spoil material from an abandoned surface mine threatened the stability of several homes and a U.S. highway in Dorton, Kentucky.*

Spoil: *Prior to reclamation in 1986, acid drainage and sedimentation from this 80-acre surface mine near Knoxville, Iowa were affecting the quality of surrounding land and water.*

Mine Fires

Underground mine fires represent one of the most complex problems associated with abandoned mines. Ignited by burning trash at coal outcrops, spontaneous combustion or other natural cause, the fires are often detected only by steam rising from ground fissures. In some cases, subsidence may result. Additionally, these fires may cause health and safety problems for nearby residents since fumes can rise through ground fissures and enter overlying structures.

Reclamation usually entails constructing a trench of noncombustible material to halt spread of the fire, flushing the mine with noncombustible material, removing the burning material from the mine, or smothering the fire by sealing the mine.

In Centralia, Pennsylvania nearly 1,000 people were relocated when an underground mine fire proved impossible to extinguish. In addition to the obvious safety hazard, residents were suffering from severe respiratory and other health problems. As a result, most of them elected to move when a special appropriation by Congress provided $42 million for the purchase of their properties and assistance in relocation.

Mine refuse piles may catch fire as well and can burn over an extended period, generating noxious fumes. Because the burning is not always apparent, people or animals may inadvertently walk onto the piles and become seriously injured.

Refuse fires are extinguished by grading and inundating the refuse with water, or by smothering the smoldering embers with soil.

Since 1977, nearly 240 mine fires have been abated through the AML and Emergency Programs.

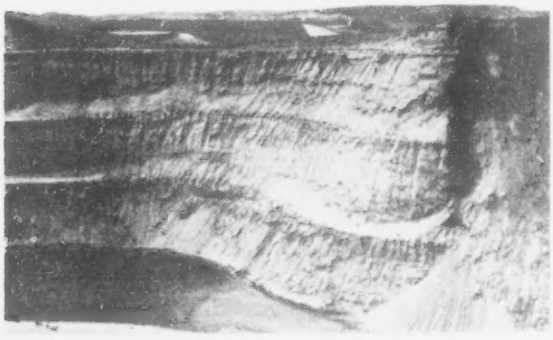
Mine Fire. *In 1981, a coal refuse fire in Dunbar, Pennsylvania ignited a nearby wooded area and could have spread to surrounding homes.*

Subsidence. *A street in Shinnston, West Virginia collapsed in 1981 when a mine opening near the base of the road embankment subsided.*

Highwalls

Yet another problem commonly connected with abandoned mines is highwalls — the sheer walls resulting from the final cut of a surface mine. Often ranging up to 150 feet in height, they frequently present a safety hazard because of their steepness and instability.

During reclamation, the final cut area (which has sometimes resulted in the formation of a



Acid Drainage. *Acid and radioactive drainage from this uranium mine in the Gas Hills Uranium Mining District of Wyoming affects surrounding land and ground water.*

water impoundment) is filled or partially filled against the highwall, or the highwall itself may be graded to a more stable slope. The area is then vegetated to insure stability.

Under the AML Program, large numbers of highwalls have been eliminated. In Oklahoma alone, more than 53,000 feet of highwall have been reclaimed.

Subsidence

Subsidence occurs when an underground mine settles or shifts. This settling can produce pits and sags in the ground's surface, sometimes damaging structures and utilities overlying the shifting mine.

Subsidence in open areas may be addressed by filling the pit or sag, thereby restoring drainage capabilities. Where individual buildings are involved, foundations can be reinforced and supported with beams. When larger areas are affected, the mine itself may be filled with a variety of materials to increase stability.

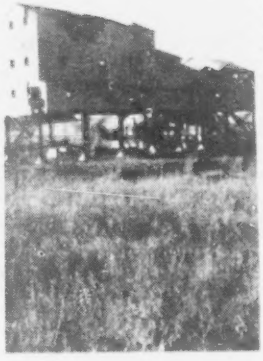
Since more than seven million acres in the United States were undermined before 1977, the potential for subsidence damage is great.[1] In fact, about two million of these acres have already subsided, with 7,500 acres requiring abatement through the Emergency Program.

Other Problems

Old mine buildings and equipment often exist where coal mines operated. In addition to being an eyesore, these structures provide a tempting play area for children and careless adults. Their primary hazard lies in the fact that they are usually quite deteriorated and subject to collapse. Dilapidated buildings and machinery are generally demolished during reclamation, with the rubble sometimes used as fill material for mine openings.

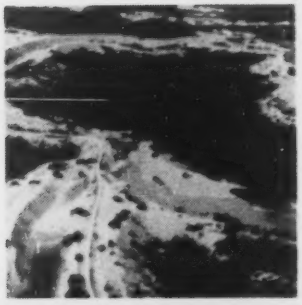
Underground mines typically contain a variety of gases, usually including methane. When a mere 5–15 percent concentration of methane escapes to the surface — through an open or improperly filled shaft, a fissure, or (in the case of a very shallow mine) the ground — it becomes highly combustible and explosive. Gas leaks cannot be sealed since pressure would eventually force the gases out through an alternative route. As a result, vents are installed during reclamation to provide for the safe diffusion of gases into the atmosphere.

Finally, abandoned mines are frequently used as unauthorized dumping grounds. This contributes to the pollution problems and unsightliness of many sites, and may pose a serious safety hazard if the waste is toxic. During reclamation, trash and debris are removed and hauled to approved landfills.



Hazardous Structures. *At the Hazen mine near Hazen, North Dakota, this abandoned load out structure provided a hazardous play area for children living nearby; the building was demolished in 1986.*

[1] G.C. Miller and W. Johnson, *Abandoned Coal Mined Lands: Nature, Extent and Cost of Reclamation* (U.S. Bureau of Mines, Department of the Interior, Washington, D.C., 1979).



Before: *Sediment from the 28 acre Meade Fork mine near Pound, Virginia, had resulted in periodic flooding of a nearby state highway and impaction of an adjacent stream*

After: *The mine refuse was graded to establish stable slopes and then covered with soil during reclamation. Drainage improvements and cleanup of the stream were accomplished as well during the project which was completed in 1983 at a cost of $429,000. Finally, the site was fertilized and seeded.*

The Eastern Region

Alabama
Georgia
Kentucky
Maryland
North Carolina
Ohio
Pennsylvania
Rhode Island
Tennessee
Virginia
West Virginia

The Eastern Region has the earliest history of mining, with many sites — the majority of which are drift mines tunneled into mountainsides — dating back to the mid-1700s. These abandoned mines typically contain collapsing mine buildings and equipment and numerous unstable openings. Acid drainage flows from the openings, polluting water systems and causing landslides due to slope saturation. Other landslides are generated when spoil or refuse deposited along steep mountainsides begins to slide or flow.

An additional problem associated with this region is mine fires, stemming from both underground mines and refuse piles. Frequently, underground fires produce toxic fumes, causing respiratory ailments or asphyxiation. Noxious fumes are also created by refuse fires which may burn extensively. Finally, subsidence is prevalent here and usually presents a very serious safety hazard since many mined-out areas are heavily populated and developed.

Before: *A 150-acre surface mine near Cheshire, Ohio had resulted in excessive siltation of the watershed and, consequently, produced severe flooding of agricultural land and roadways.*

After: *After grading the spoil ridges to more stable slopes, the Little Kyger Creek site was covered with soil and seeded. Reclamation of the mine, completed in 1981 at a cost of $1.8 million, eliminated sediment sources and flooding, and restored the land to a useful condition.*

Before: *Prior to reclamation, this 70-acre mine near Knottsville, Kentucky posed a serious hazard due to its steep highwall located near a residential area.*

After: *During reclamation, the highwall and surrounding areas were graded to establish proper drainage patterns and eliminate dangerous slopes. The site was then fertilized and seeded. The project – known as Joe's Run — was completed in 1984 at a cost of $303,000, with the site currently serving as pasture land.*

Before: *This four acre surface mine near Locust Fork, Alabama contained spoils and a highwall immediately adjacent to a county road which was part of a school bus route. The highwall presented a particular hazard during periods of precipitation when the dirt road became extremely slippery. Additionally, the site had been used as an illegal dumping ground and had attracted rats and other vermin.*

After: *Work at the site — known as the Center Springs Project — was completed in 1985 at a cost of $48,000. Reclamation entailed backfilling against the highwall, grading the spoil, burying the debris, and then seeding the area with grasses and trees. The site now provides wildlife habitat and will eventually be used to harvest pine trees.*

Before: *Acid spoil and mine drainage from this 340-acre surface mine in Coalmont, Tennessee had contaminated the watershed and public water supply. The polluted water had killed all fish and other small organisms living in the watershed leading to the treatment facility.*

After: *Completed at a cost of $3.3 million, the Big Creek Project involved eliminating the acid water impoundments, grading the spoil ridges, and revegetating the site to control erosion and impede acid production. The threat to the public water supply was eliminated and wildlife subsequently returned to the area.*

Before: *A 60-foot highwall at the Moffett-Wards Dairy site, northeast of Tulsa, Oklahoma, posed a very serious safety hazard since it was located immediately adjacent to a subdivision. One death had occurred at the mine as a result of a fall from the highwall.*

After: *Reclamation of the site, undertaken in 1986 at a cost of $642,624, included grading 6,000 feet of highwall and 80 acres of surrounding surface-mined areas. Finally, the site was fertilized and seeded. The mine now serves as pasture land and wildlife habitat.*

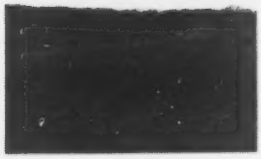
The Interior Region

Arkansas
Illinois
Indiana
Iowa
Kansas
Louisiana
Michigan
Missouri
Oklahoma
Texas

The Interior Region has a history of larger, more extensive coal mining operations, both underground and surface. Openings to deep mines were typically excavated below drainage level; consequently, they became flooded when abandoned.

Mines in this region generally contained larger mine buildings and equipment that have become unstable over the years. The large quantities of highly acidic, sulfuric mine refuse (gob and slurry) found here pose significant problems as well. Acid drainage, erosion, and sedimentation from refuse and acidic spoil are major sources of pollution.

Another recurring problem for this region is subsidence. Large areas were extensively undermined during the late 1800s and early 1900s which, following World War I, began developing into large towns and cities. In these populated areas, highwalls left from surface mines present safety hazards as well. Finally, refuse fires, landslides, and gas leaks are occasional problems.



Before: *Refuse from the Julian mine near Frichton, Indiana was generating serious pollution problems such as acid drainage and sedimentation to an adjacent creek downstream flooding had resulted as well. Safety hazards at the site included open shafts and gas leaks.*

During: *All openings on the 75-acre site were filled, the acid refuse was covered with soil, and the area was graded to establish proper drainage patterns. Finally, all affected areas were seeded.*

After: *The reclamation project was completed in 1986 at a cost of $1.8 million and the mine now serves as pasture land. Several ponds constructed during reclamation may ultimately provide a fishing area, and the site may be used for hay production once it stabilizes.*

During: *In 1986, part of an underground mine in Paris, Arkansas subsided, causing the ground surface to cave in. The pit was excavated and filled with gravel. All affected areas were seeded.*

After: *The project was completed at a cost of $2,900 with the site continuing to serve as residential land.*

Before: *A dangerous highwall at the Arkansas Coal Company mine posed a serious hazard since it was located along a heavily traveled state highway.*

After: *$60,300 was spent to reclaim the mine in 1985, which included grading, seeding, and fertilizing the area. The mine, located between Mansfield and Waldron, Arkansas, now provides excellent wildlife habitat and may eventually be used for pasture.*

Before: *A 75-acre surface mine near Worland, Missouri had been a continual source of air and water pollution to the surrounding area. In addition to acid drainage and sedimentation problems, an underground fire burned beneath portions of the site.*

After: *Reclamation of the site — known as the Tiger mine — began in 1984 and entailed extinguishing the burning materials, grading the refuse areas, filling an open shaft, and, finally, establishing vegetation. The work was completed at a cost of $1.6 million and the area now provides excellent wildlife habitat and pasture land.*

Before: *This hazardous highwall near Sutton, Alaska posed a serious hazard to skiers and snow equipment operators because the impending drop-off was invisible during periods of heavy snow cover. In addition, a large amount of debris and equipment had been dumped into the adjacent impoundment.*

During: *At a cost of $30,000, spoil surrounding the highwall was graded, and access to the impoundment from the road was blocked with boulders. The impoundment was maintained as a lake, and the remainder of the six-acre site is being developed by Matanuska-Susitna Borough (similar to a county government) as a campground/picnic area.*

The Western Region

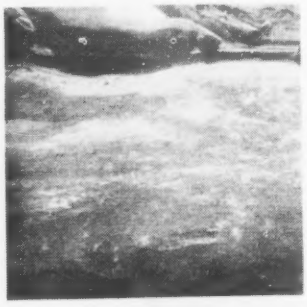
Alaska
California
Colorado
Crow
Hopi
Montana
Navajo
New Mexico
North Dakota
Oregon
South Dakota
Utah
Washington
Wyoming

Coal mining in the Western Region began during the mid-1800s as did the deep mining of other minerals. Subsidence of the area's numerous underground coal mines is common and poses a serious safety hazard to communities situated over the mines. A second significant problem for this region stems from the many mine shafts and adits located in both prairie and mountainous areas.

Since this part of the country receives little rainfall, chemical drainage from coal mines is not often a problem. The low precipitation rate does, however, make revegetation of mine sites difficult, thereby contributing to erosion and sedimentation problems. In addition, the alkalinity of spoil and refuse in this region sometimes results in saline pollution problems similar to those generated by acid spoil and refuse in other regions.

Problems associated with non-coal mines, including uranium, copper, gold, and hard rock, are more frequent and often present more severe problems. Shafts of these mines, for example, may plummet hundreds of feet into the ground, making them extremely hazardous. Tailings (processing wastes) containing high volumes of heavy metals or radioactive elements often lie exposed to precipitation and may contaminate surrounding areas during drainage.

At the Keams Canyon #7 site, located near Keams Canyon on Hopi tribal land, reclamation was aimed at eliminating several hazardous structures, covering refuse with soil, filling and sealing two mine openings, and seeding the area. Work at the four-acre site was completed manually which, in addition to cutting down construction costs, provided jobs for area residents.

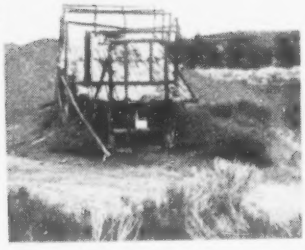


***Before:** The mine roof of this underground mine near Beulah, North Dakota collapsed, resulting in pit subsidence as evidenced by the rows of large vertical openings.*

***After:** In 1986, at a cost of $250,000, the numerous subsidence pits were filled and the site was graded and seeded. The mine now serves as wildlife habitat, and includes a game and fishing area.*

Prior to reclamation in 1983, this shaft at the Golden Messenger mine in York, Montana was open to 100 feet below the ground surface. Additionally, the site contained several other mine openings and scattered trash and debris.

Since no fill material for the shaft was readily available, a steel cone was constructed to be inserted into the opening. The cone was then filled to surface level with soil, and the site was graded and seeded.



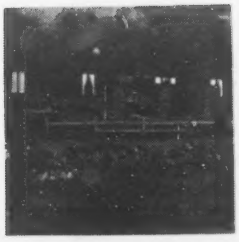
***Before:** The 2.5-acre Rasmussen mine near Vernal, Utah contained old mining equipment, dilapidated buildings, mine refuse, several mine openings, and a subsidence pit. The site was used for recreational purposes, thereby compounding the safety hazard.*

***After:** $15,300 was spent to raze the buildings, fill the openings and subsidence pit, bury the refuse, and seed the site. The project was completed in 1986 and the area is now used for pasture land, recreational use, and wildlife habitat.*

The Emergency Program

In addition to the ongoing AML Program, SMCRA included provisions for an Emergency Program to be financed by the Reclamation Fund. Mine fires, gas leaks, subsidence, landslides, and other mining-related problems which occur suddenly and may be life-threatening can be quickly addressed through this program.

Initially, the Secretary of the Interior, through the Office of Surface Mining Reclamation and Enforcement, was responsible for all emergency work. Staff from OSMRE regional offices traveled to emergency sites, developed plans, and contracted for the necessary work. Later reorganization of OSMRE placed this responsibility with the Field Operations Offices in Pittsburgh, Pennsylvania and Denver, Colorado. In 1982, OSMRE permitted state AML programs to assume emergency authority and, by the end of 1986, Arkansas, Montana, and Illinois had taken over emergency work in their states; West Virginia was in the process of obtaining such authority. In other states and on tribal lands, staff from the Field Operations Offices continue to have responsibility for addressing emergencies.



A sag subsidence in Herrin, Illinois threatened the stability of several homes in 1979. This house, located at the center of the sag, was removed from its foundation and supported with beams and hydraulic jacks until the subsidence ended several months later. The house was then replaced on its foundation.

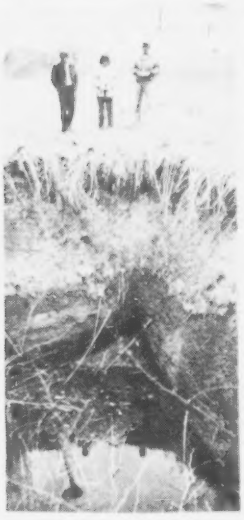
In 1978, a methane gas leak was discovered at an abandoned mine shaft in Wasson, Illinois. At a cost of $50,400, the shaft was capped and a vent was installed to control release of the gas and provide for its safe diffusion.

Whether emergency projects are undertaken by the states or OSMRE, the process is generally the same. Landowners or concerned citizens are usually the first to notice and report a developing emergency. Staff soon inspect the site, usually within 24 hours, to determine: whether the problem is, indeed, being caused by an abandoned mine; that no other entity is responsible for correcting the problem; and, that the condition is posing a safety hazard that should be immediately corrected. Once these criteria are met, construction plans are developed to abate the problem. (When an emergency condition is part of a much larger abandoned mine problem, however, the larger non-emergency areas are usually left to be corrected through the regular reclamation program.) When conditions are especially hazardous, emergency work can often be underway within 24 hours.

Funding for emergency work is provided by the Secretary's Discretionary Fund, the amount remaining in the AML Fund after the states'/tribes' 50 percent shares and other designated activities are funded. When funds are expended for emergency projects, the amount is deducted from that state's/tribe's share of discretionary funds which are allocated for additional reclamation work. Through 1986, more than 1,000 emergencies were addressed.

One of the most common types of emergencies is subsidence. When the ground surface drops because an underlying mine has settled or shifted, houses, utilities, and other development in the area can be severely damaged. Such an occurrence is usually categorized as either pit-type or sag subsidence.

Pit-type subsidence produces deep holes which are typically several feet across and have unstable sides. Pits present a significant hazard because people may stumble into the openings where loose soils can quickly smother the victim. This type of subsidence is corrected by excavating all loose soils and backfilling the opening



In Wellston, Ohio, an emergency developed in 1982 when a mine shaft subsided in a residential neighborhood. The shaft, open to a depth of 95 feet, was excavated, filled, and capped with concrete.

with clay or other impermeable materials.

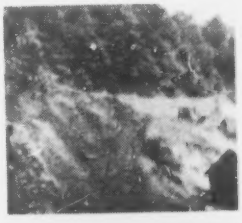
Sag subsidence affects a larger area with subtle, but more destructive ground movement. In sags, the ground movement is not uniform and both tension and compression stresses develop. Foundations and their overlying superstructures crack, twist, and settle. When damage is so severe that a structure could collapse, emergency work may be necessary to stabilize the building.

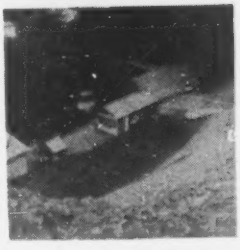
Stabilization is often achieved by releasing the superstructure from the foundation and then resupporting it with new beams. The new support system can be regularly adjusted to keep the structure level and undamaged. This technique is often used when an affected building is in the tension zone of a sag subsidence. When a structure is in the compression zone, other techniques may be employed. Trenches installed between a compression zone and a basement wall, for example, can absorb ground pressures which would otherwise damage the building.

Mine fires account for about one quarter of all abandoned mine emergencies. Fires are found both in refuse lying on the ground surface and in coal remaining in an underground mine. Refuse fires which threaten to burn developed areas or natural resources become emergency projects. Techniques for abatement vary from case to case. Where open areas lie nearby, burning refuse can be excavated and spread out, doused with water, and then smothered with soil. In other cases, the refuse may be left in place and covered.

One of the most technically difficult problems to control is underground mine fires. First, the boundaries of the fire must be identified by monitoring holes drilled into the mine. A suitable technique is then selected from several general approaches, including: construction of a barrier trench by excavating from the surface to the mine void and backfilling with noncombustible soil; injection of noncombustible material through the bore holes into the mine; or, other technique such as sealing the ground surface with clay soils.

Other emergency conditions develop when mine shafts open unexpectedly, methane or other hazardous gas leaks develop, or landslides begin to quickly move and endanger developed areas. Appropriate techniques are used in each case to abate the hazard; mine shafts are filled; vents are installed to safely diffuse gases; and, unstable or sliding materials are removed or restricted.





In 1981, hundreds of cubic yards of spoil material from an abandoned surface mine began to slide, threatening a nearby home in Hurley, Virginia.

During this emergency project, portions of the spoil material were excavated and deposited elsewhere on the site. The disturbed area was then revegetated to provide further stability. Total cost of the project was $85,300.

Research and Development

Early in its operations, OSMRE established research and development of reclamation techniques as an integral part of the AML Program. This effort evolved into an annual $2 million program providing for funding of research proposals selected on a competitive basis, with work focusing on the most complex abandoned mine problems.

Extensive research has been performed, for example, in the area of acid mine drainage. One significant discovery was that the surface application of agricultural limestone caused surface water to become alkaline before entering acidic mine materials, thereby reducing acid seeps and ground water contamination. Another important development was the use of artificial and natural wetlands — referred to as Passive Mine Drainage Treatment Systems -- to treat acid drainage.

Finally, mine fires have been the target of much formal research. Work is in progress to develop better techniques for investigation and abatement of fires. Preliminary results from research involving the use of foam backfilling to halt the spread of underground fires are encouraging.

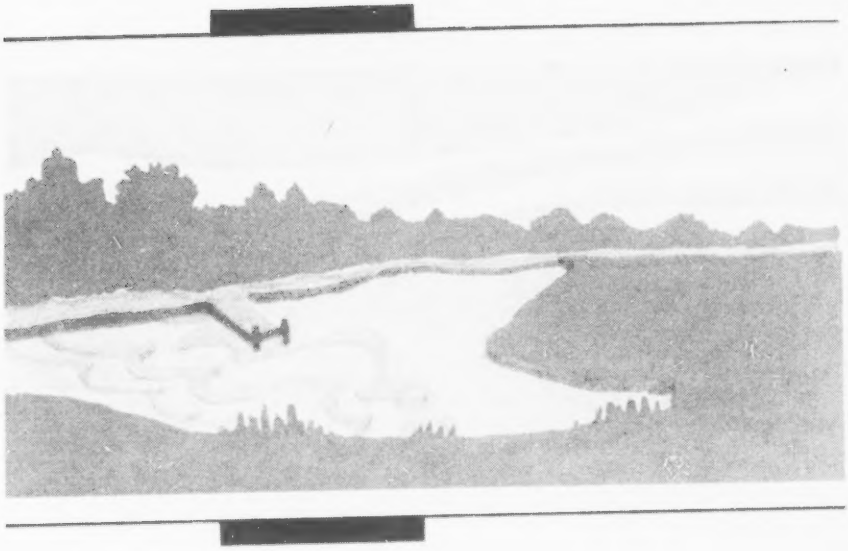
Research and development is also achieved through the AML Program itself since AML staff are able to analyze each mine problem individually, developing the most suitable technique for its abatement.

Such analysis, undertaken by OSMRE and the states, has led to the development of innovations in the reclamation of abandoned mines. For example, certain plants (sphagnum moss, cattails, and other hydric species) have been discovered to be very effective in filtering out heavy metals from acid drainage and helping to neutralize the water. It has also been revealed that when limestone and other alkaline materials are used at the interface of acid-producing refuse before soil covering, it minimizes upward acid migration, making it possible to grow plants in a minimal depth of soil cover.

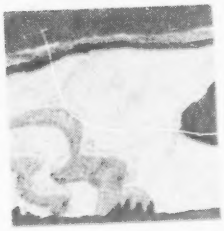
Yet another innovative technique developed through the AML Program is the direct vegetation of areas without soil covering. Again, limestone or other substance is employed to neutralize the top layer of material so that a stabilizing plant cover can be established. Direct seeding is frequently used on acid spoil, and has been demonstrated effective on both coarse refuse and slurry.

Other interesting approaches to reclamation include the aerial application of limestone, fertilizer, and seed, and the use of by-products which would otherwise have been wasted (paper pulp, sewage and water treatment sludge) to enhance chemical and organic qualities of growth media.

These and other innovative techniques employed by OSMRE and state AML programs have provided successful reclamation, in many instances at a substantially lower cost than that of traditional practices. Research findings have been shared among programs so that they can be applied wherever suitable. In some cases, they have been incorporated into reclamation at active mining sites.



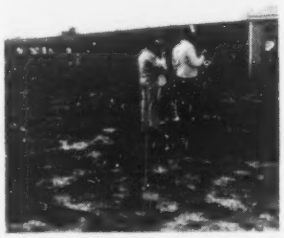
Ten Years of Progress



Addressing Congress in 1907, President Theodore Roosevelt warned, "To waste, to destroy our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed." A similar sentiment was expressed some 60 years later by Stewart Lee Udall who, in writing *The Quiet Crisis*, said, "A land ethic for tomorrow should . . . stress the oneness of our resources and the live-and-help-live logic of the great chain of life. If, in our haste to 'progress', the economics of ecology are disregarded by citizens and policy makers alike, the result will be an ugly America."

In the early 1970s it seemed these admonitions were finally being heeded. Americans were coming to appreciate their vast and unique natural resources, realizing that once allowed to slip away, they could never be replaced. In addition to other reforms, conservationists, environmentalists, farmers, and others were urging regulation of the coal mining industry which, at that time, was stripping away hundreds of acres per week of valuable land. More than just an eyesore, the resulting scars posed serious safety hazards and environmental problems.

With passage of the Surface Mining Control and Reclamation Act of 1977, a mechanism was in place to address these problems. Since that time, and with the cooperation of the active coal mining industry, thousands of acres of severely disturbed land have been cleaned up and restored to productive use as farmland, pasture, open space, and wildlife habitat. Additionally, state AML programs, working in tandem with local officials and other groups, have transformed hundreds of acres of abandoned coal mines into public parks, many of them including facilities such as ball diamonds and courts, playgrounds, picnic areas, lakes, campgrounds, and trails.



Residents of Livingston, Illinois enjoy that town's new park constructed in 1986 at a reclaimed coal mine. The 15-acre park already includes a miniature golf course, horseshoe pits, and picnic areas.

The benefits reaped from the AML Program do not stop here. In its efforts to abate the pollution and numerous safety hazards caused by old coal mines, the AML Program has created thousands of jobs. In fact, it is estimated that the expenditure of every $1 million in

Following reclamation of this mine near Victoria, Illinois, wildlife returned to the area which is used by a local policemen's association as a summer camp for disadvantaged youth.

grant monies translates into 40 jobs in areas such as construction, labor, equipment and materials procurement, and other services. And, through the AML Program, reclamation technologies have been developed which will benefit both future abandoned mine reclamation work and the active mining industry.

Specific AML Program accomplishments are charted on the following pages. A total of $1 billion has been spent on abandoned mine reclamation in 36 states and tribal lands over the past ten years. In the 23 states having program authority, reclamation funds are provided in the form of annual grants from the Office of Surface Mining Reclamation and Enforcement. In the other nine states and the three Indian tribes, reclamation funds are provided through cooperative agreements or reclamation is undertaken directly by OSMRE.

This surface mine near Pageville, Ohio was once a source of acid drainage and sedimentation to the surrounding area. Those problems were abated through reclamation and the mine now serves as open space and wildlife habitat.

Since 1977, 5,600 abandoned mine sites, encompassing 55,615 acres across the nation, have been reclaimed, including 33,600 acres of mine spoil; highwalls; impoundments; roads and building and equipment areas; and, some 9,000 acres of mine refuse — culm banks, gob piles, slurry ponds, and scattered refuse in adjoining areas. Additionally, more than 7,600 mine openings (shafts, slope entries, and adits) have been either filled or sealed; nearly 240 fires, both surface and underground, have been abated; and, 450 landslides have been addressed.

In seven states, problems stemming from abandoned non-coal mines have been abated. This work was authorized by OSMRE, either because the non-coal mine problem posed a serious hazard, or because all coal problems in that state had been reclaimed. In total, 1,045 non-coal mines have been reclaimed, containing 6,849 acres of surface-mined areas and 25 acres of refuse. 2,438 openings were filled or sealed as well.

Finally, the Rural Abandoned Mine Program has used a total of $55.4 million to reclaim more than 10,000 acres comprising 579 sites. This work, combined with that undertaken by other parties (OSMRE, states, and tribes), yields a total of 6,203 abandoned mines on 65,750 acres that have been reclaimed at a cost of $1.1 billion.

As demonstrated in this report, a great deal has been accomplished over the past ten years. Nearly 66,000 acres of land have been reclaimed; its usefulness increased. This progress is significant but much remains to be done. In the coming years, OSMRE and the states will continue their efforts to address abandoned mine problems which remain on thousands of acres across the country.

Prior to 1986, acid mine drainage from this 80-acre site near Rich Hill, Missouri was causing severe environmental problems. Reclamation eliminated that problem and the site now provides excellent wildlife habitat.

AML Program Accomplishments

State	AML Program Authority	AML Funds Received	Sites Reclaimed	Total Acres Reclaimed	Surface-mined acres Reclaimed	Acres of Refuse Reclaimed	Number of Openings Addressed
Alabama	yes	$ 33,897,529	845	1,572	1,505	67	697
Alaska	yes	$ 1,351,861	12	69	42	27	4
Arkansas	yes	$ 1,312,508	50	53	23	-	27
California	no	$ 973,300	5	9	na†	na	66
Colorado	yes	$ 24,797,000	660	1,290	1,090	200	938
Coal			250	935	835	15	506
Non-Coal			410	45		9	435
Crow	no	$ 2,065,221	8	1	na	na	1
Georgia	no	$ 1,498,000	5	146	na	na	5
Hopi	no	$ 1,465,004	9	38	38		5
Illinois	yes	$ 74,870,000	994	4,000	1,000	1,000	230
Indiana	yes	$ 42,902,582	229	2,744	1,062	1,189	178
Iowa	yes	$ 11,521,080	12	1,577	1,191		5
Kansas	yes	$ 6,267,497	48	175	103	8	11
Kentucky	yes	$167,848,425	558	10,402	9,100	1,000	931
Louisiana	yes	$ 346,600					
Maryland	yes	$ 4,775,000	21	845	525		5
Michigan	no	$ 844,461	5	5	na	na	1
Missouri	yes	$ 39,069,688	16	742	290	379	5
Montana	yes	$ 29,344,076					
Coal			308	800	50	550	250
Non-Coal			220	30		15	860
Navajo	no	$ 2,500,000	8	8	na	na	3
New Mexico	yes	$ 10,820,901					
Coal			38	1,087	1	1	325
Non-Coal			4	51			165
North Carolina	no	$ 52,300	5	1	na	na	6
North Dakota	yes	$ 10,964,210	52	896			5
Ohio	yes	$ 87,000,000	1,000	4,000	3,000	1,000	95
Oklahoma	yes	$ 9,988,259	46	885	744		5
Oregon	no	$ 42,300	4	4	na	na	13
Pennsylvania	yes	$271,809,684					
Coal			725	7,394	2,461	653	553
Non-Coal			2	2			4
Rosebud Sioux	no	$ 1,000,000	10	10	na	na	10
South Dakota	no	$					
Tennessee	no	$ 12,107,042	41	497	487	10	64
Texas	yes	$ 1,958,365					
Coal			6	1,405	1,397		8
Non-Coal			1	74			74
Utah	yes	$ 15,000,000	150	1,500	1,000	500	500
Coal			72	182	42	116	231
Non-Coal			84	5	2	1	203
Virginia	yes	$ 44,227,873	135	1,526	787	487	431
Washington	no	$ 1,224,700	26	21	na	na	28
West Virginia	yes	$132,893,950	333	2,733	250	1,700	429
Wyoming	yes	$ 19,000,000	500	15,000	8,000		1,000
Coal			143	2,905	1,606		297
Non-Coal			564	12,019	6,412		697
Sub-totals							
Coal			4,579	43,406.5	26,336	8,914	5,238
Non-Coal			1,045	12,209	6,849	25	2,438

*Rural Abandoned Mine Program
†Information not available
‡Passive Mine Drainage Treatment

Figures are based on projects undertaken from 1978 through 1986.
All information was provided by individual states or OSMRE.

Number of Fires Abated	Number of Subsidence Cases Addressed	Number of Slides Addressed	Other Accomplishments	RAMP* Funds Received	RAMP Sites Reclaimed	RAMP Acres Reclaimed
5	11	5		$ 2,452,504	42	645
1		2				
5	1			$ 2,080,100	15	442
	1	1				
6	86	3	3 PMDT Systems†			
	2					
	1					
6	65			$ 987,602	19	125
2	55	5		$ 460,417	30	549
1	1		Reclaimed 10,150 ft. of highwall	$ 5,017,557	27	810
2	42			$ 1,011,881	1	83
29	18	255		$ 6,825,070	75	2,065
	1	1		$ 1,249,056	16	145
	2					
10	1			$ 929,545	5	278
30	37					
1						
2	4					
2	5					
				$ 392,484	9	520
2	22			$ 7,221,142	89	828
4	109	45		$ 2,192,804	11	559
	5		Reclaimed 54,000 ft. of highwall & 147 acres of water impoundments			
	4			$14,152,727	124	1,410
51	283	10				
	2			$ 184,709	2	55
		2		$ 947,000	40	240
				$ 1,039,280	23	510
8	33					
8	3	50		$ 1,215,407	9	91
1	12	1				
55	160	76		$ 7,481,185	11	330
				$ 1,726,900	16	398
6	75					
	1	1				
238	947	450				
1	1	1				
239	948	451		$55,252,795	579	10,135

For more information, contact the AML or OSMRE office nearest you:

AML Offices

Mr. Tom J. Ventress
State Program Administrator
Department of Industrial Relations
649 Monroe Street
Montgomery, Alabama 36130
205/261-5360

Ms. Laurel Munby
Department of Natural Resources
Division of Mining and Energy Management
Box 7-016
Anchorage, Alaska 99510
907/561-2020

Mr. Floyd Durham, Chief
Division of Surface Mining and Reclamation
Department of Pollution Control and Ecology
P.O. Box 9583
Little Rock, Arkansas 72219
501/562-7444

Mr. James F. Davis
Chief Geologist
1416 Ninth Street, Room 1341
Sacramento, California 95814

Mr. David Holm
Program Administrator
Mined Land Reclamation
1313 Sherman Street, Room 423
Denver, Colorado 80203
303/866-3567

Mr. Leland Waking Bear
Box 155
Crow Agency, Montana 59022
406/638-2679

Mr. Sanford P. Duffy
Surface Mined Lands Reclamation Program
Environmental Protection Division
P.O. Box 233
Macon, Georgia 31202
912/744-5340

Mr. Robert C. Foste
Division of Mining and Minerals
AML Program Authority
Box 123
Kykotsmovi, Arizona 86039
606/734-2441 ext. 227

Mr. Timothy Hickmann
Executive Director
Abandoned Mined Lands
Reclamation Council
100 North First Street
Alanna Building, First Floor
Springfield, Illinois 62701
217/782-0588

Mr. John Allen
Department of Natural Resources
Division of Reclamation
P.O. Box 103
Jasonville, Indiana 47438
812/665-2207

Ms. Erica Bernet
AML Coordinator
Department of Agriculture
and Land Stewardship
Division of Soil Conservation
Wallace State Office Building
Des Moines, Iowa 50319
515/281-5851

Ms. Joyce Stover, Director
Kansas Corporation Commission
Mined Land Division
105 West Eleventh Street
Box 1418
Pittsburg, Kansas 66762
316/231-8015

Mr. Dave Rosenbaum, Director
Division of Abandoned Lands
Natural Resources
and Environmental Protection
618 Teton Trail
Frankfort, Kentucky 40601
502/564-2141

Mr. Tom Beckers
AML Section
Inspection and Mining Division
Department of Natural Resources
Office of Conservation
P.O. Box 94275 Capitol Station
Baton Rouge, Louisiana 70804
504/342-5526

Mr. Anthony Abar, Director
Bureau of Mines
69 Hills Street
Frostburg, Maryland 21532
301/689-4136

Mr. Roger Whiteley
Geological Survey Division
Department of Natural Resources
Reclamation and Mining Control
P.O. Box 30028
Lansing, Michigan 48909
517/373-1256

Mr. Scott Offitt
Abandoned Mine Land Section
Reclamation Program
P.O. Box 1368
Jefferson City, Missouri 65102
314/751-4041

Mr. Richard Fontaine, Chief
Abandoned Mine Reclamation Bureau
Montana Department of State Lands
Capitol Station
Helena, Montana 59620
406/444-2074

Mr. Phil Zahne
Program Manager
Navajo Reclamation Program
Box 1356 Navajo Nation
Window Rock, Arizona 86515
602/729-2290

Mr. Elling Brostuen, Director
Mining and Minerals Division
Abandoned Mine Lands
Camino de Los Marquez
Santa Fe, New Mexico 87503
505/827-5970

Mr. Louis Oppard
North Dakota Public Service Commission
Abandoned Mine Land Division
State Capitol Building
Bismarck, North Dakota 58505
701/224-4109

Mr. Bob Baker
Department of Natural Resources
Division of Reclamation
1855 Fountain Square Court
Building H-2
Columbus, Ohio 43224
614/265-6562

Mr. Mike Kehl
AML Program Director
Oklahoma Conservation Commission
2800 North Lincoln Boulevard, Room 160
Oklahoma City, Oklahoma 73105
405/521-2384

Mr. Paul Lawson, Supervisor
Department of Geology
and Mineral Industries
1129 South Sanham Road
Albany, Oregon 97321

Mr. David Hogemann, Chief
OSMRE Management Section
Division of Mine Hazards
Department of Environmental Resources
P.O. Box 1467
Harrisburg, Pennsylvania 17120
717/787-7669

Mr. Tim Eagle
Chief of Reclamation
State Abandoned Mine Lands
305 West Springdale Avenue
Knoxville, Tennessee 37917
615/637-6079

Mr. Jerry Hill
Texas Railroad Commission
Surface Mining and Reclamation Division
P.O. Box 12967 Capitol Station
Austin, Texas 78711
512/475-6749

Ms. Mary Ann Wright
AML Program Administrator
Division of Oil, Gas and Mining
#5 Triad Center
355 West North Temple, Suite 350
Salt Lake City, Utah 84180-1203
801/538-5340

Mr. Roger Williams
AML Manager
Department of Mines, Minerals, and Energy
Division of Mined Land Reclamation
P.O. Drawer U
Big Stone Gap, Virginia 24219
703/523-2925

Mr. Tim Wade
Department of Natural Resources
Division of Geology
MS: PY-12
Olympia, Washington 98504
206/459-6372

Mr. Patrick Park
Department of Energy
Division of Reclamation
1616 Washington Street East
Charleston, West Virginia 25305
304/348-3580

Mr. Gary Beach
Mine Reclamation Program Manager
Wyoming Department
of Environmental Quality
401 West Nineteenth Street
Cheyenne, Wyoming 82002
307/777-7756

OSMRE Offices

Mr. Andrew Salmon, Acting Director
Birmingham Field Office
Office of Surface Mining Reclamation
and Enforcement
2128 West Valley Avenue
Homewood, Alabama 35209
205/254-0893

Mr. James Fulton, Director
Springfield Field Office
Office of Surface Mining Reclamation
and Enforcement
Room 216
600 East Monroe Street
Springfield, Illinois 62701
217/492-4495

Ms. Nina Rose Hatfield, Director
Columbus Field Office
2242 South Hamilton Road
Columbus, Ohio 43232
614/866-0578

Mr. James Monchief, Director
Tulsa Field Office
333 West Fourth Street
Tulsa, Oklahoma
918/581-7927

Mr. Richard D. Burke, Director
Indianapolis Field Office
Office of Surface Mining Reclamation
and Enforcement
Room 522
46 East Ohio Street
Indianapolis, Indiana 46204
317/269-2620

Mr. W. Tipton, Director
Lexington Field Office
Office of Surface Mining Reclamation
and Enforcement
Suite 2B
340 Legion Drive
Lexington, Kentucky 40504
606/233-2329

Mr. William Kovacic, Director
Kansas City Field Office
Office of Surface Mining Reclamation
and Enforcement
Room 907
1103 Grand Avenue
Kansas City, Missouri 64106
816/374-5427

Mr. Robert Hagen, Director
Albuquerque Field Office
Office of Surface Mining Reclamation
and Enforcement
219 Central Avenue, Northeast
Albuquerque, New Mexico 87102
505/766-1492

Mr. Robert Biggi, Director
Harrisburg Field Office
Office of Surface Mining Reclamation
and Enforcement
Suite 3-A
101 South Second Street
Harrisburg, Pennsylvania 17101
717/782-4036

Mr. George E. Miller, Director
Knoxville Field Office
Office of Surface Mining Reclamation
and Enforcement
Room 500
530 Gay Street, Southwest
Knoxville, Tennessee 37902
615/637-1804

Mr. William Thomas, Director
Big Stone Gap Field Office
Office of Surface Mining Reclamation
and Enforcement
P.O. Box 626
Big Stone Gap, Virginia 24219
703/523-4303

Mr. James Blankenship, Director
Charleston Field Office
Office of Surface Mining Reclamation
and Enforcement
603 Morris Street
Charleston, West Virginia 25301
304/347-7158

Mr. Jerry Rome, Director
Casper Field Office
Office of Surface Mining Reclamation
and Enforcement
Federal Building, Room 2128
100 East B Street
Casper, Wyoming 82601-1918
307/324-5496

[From the Washington Post, Oct. 14, 1987]

REPRODUCTION OF THE OFFICE OF SURFACE MINING BOOKLET'S COVER.

Mine Office's Booklet Brings Lawmaker's Ire to Surface

By Bill McAllister
Washington Post Staff Writer

A picture may be worth a thousand words in a federal report—unless it is a booklet printed in color on glossy paper that paints a controversial program as an unqualified success.

Then, the picture is guaranteed to attract the ire of Congress.

That is what happened yesterday to the Office of Surface Mining, which this summer printed 2,946 copies of a 50-page booklet celebrating the 10th anniversary of the Surface Mining Control and Reclamation Act.

Rep. Mike Synar (D-Okla.), who chairs the House Government Operations subcommittee on environment, energy and natural resources that oversees the Interior Department, said he is furious over the booklet, which he castigated as typical of the office's approach to its shortcomings.

"Instead of coming to grips with their problems, they spend their resources trying to mask them with cosmetics," he said.

The booklet, which cost $10 a copy to print, proclaims that the reclamation act has been an unqualified success and offers 87 color photographs of manicured old mining sites. The old mines have become an apple orchard in Virginia, a buffalo ranch in Montana, a Christmas tree farm in Washington and housing sites in Kentucky, the report said.

"While a pretty picture may be worth a thousand words, it is not any good to a farmer who can't grow crops on his land or a family who can't drink water polluted with . . . drainage," said Synar, a longtime critic of the way the office has enforced the mining act.

Titled "Surface Coal Mining Reclamation: 10 Years of Progress, 1977-1987," the booklet hails the law as "a real American success story." It credits the coal industry for taking a law that "was thought by many to be unworkable and an economic disaster" and making it work.

" . . . The coal industry has generally met the challenge by utilizing ingenuity and state-of-the-art technology to operate successfully and within the law," the booklet says.

United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement

UNITED STATES DEPARTMENT OF THE INTERIOR

Donald Paul Hodel, *Secretary*
J. Steven Griles, *Assistant Secretary for Land and Minerals Management*

OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

Jed D. Christensen, *Director*

COVER PHOTO: *When reclamation is successfully completed, the land closely resembles the landscape before mining. This Oswego, Kansas, mining operation disrupted the landowner's agricultural operations for only a short time.*

SURFACE COAL MINING RECLAMATION: 10 YEARS OF PROGRESS, 1977-1987

A report on the protection of the Nation's land and water resources under Title V of the Surface Mining Control and Reclamation Act of 1977

United States Department of the Interior
Office of Surface Mining Reclamation and Enforcement
Washington, D.C.
August 3, 1987

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

FOREWORD

In 1967, the interior Department published a special report, "Surface Mining and Our Environment," describing the environmental side effects of mineral production in the United States by surface extraction methods. In 1977, the Interior Department began the task of regulating surface coal mine reclamation following enactment of national legislation that year. In 1987, acknowledging that much remains to be done, the Interior Department again presents a special report describing how environmental protection and land reclamation have been built into the process of coal mining in the United States, as required by the 1977 law.

Today, 10 years after Congress passed the Surface Mining Control and Reclamation Act into law, successful land reclamation and environmental protection have become routine even though national production of coal has increased approximately 30 percent.

Emerging from years of congressional debate, the Act was thought by many to be unworkable and an economic disaster for the coal industry because of the increased costs of reclaiming surface mined lands. Instead, the coal industry has generally met the challenge by utilizing ingenuity and state-of-the-art technology to operate successfully and responsibly within the law. The result is clear, and it is a real American success story; surface coal mining is now becoming truly a temporary use of the land. Even before surface coal mining ends in an area, reclamation is taking place and the land is either being returned to its original shape and use, or it is being improved for new uses that will benefit landowners and communities.

Implementation of the surface mining law by State and Federal agencies has not been easy. The technical problems of reclaiming surface mined land are complex, and the law enacted to protect the environment during mining covers every aspect of mine operations. Many of the problems of irresponsible mining and reclamation operators have attracted wide publicity, and little recognition has come to the majority of operators doing excellent reclamation and complying with the law. Although there are still violations, the tendency is toward fewer of them as compliance becomes more widespread. Moreover, enforcement by State and Federal regulators is bringing about reclamation of sites where there were uncorrected violations. Meanwhile, in reviewing the results on reclaimed mine sites, it is clear that the surface mine law is working. Many photographs of reclaimed mine sites in this report show no indication that surface mining ever occurred. The sites have been reclaimed and the pictures show a landscape which is typical in rural areas throughout the country. This is the clearest evidence that the basic intent of the law has been achieved without compromising coal production.

In the 10 years since passage of the law, more than 25,000 permits have been issued throughout the United States for mining and reclamation operations that affect over 3.4 million acres, an area approximately the size of Connecticut. The examples shown in this report represent only a small sample of the advances in standard mining practices and the extent of successful reclamation that have taken place during the last 10 years. It is a picture of achievement that Americans can take pride in, and that should reassure the residents of the coal-producing States that they can enjoy the economic benefits of mining without sacrificing long-term environmental quality and land productivity.

CONTENTS

Page

Introduction 1

The Surface Mining Control and Reclamation Act
- Performance standards 2
- Permits 2
- Bonds 2
- Inspection and enforcement 2
- Lands unsuitable for mining 2

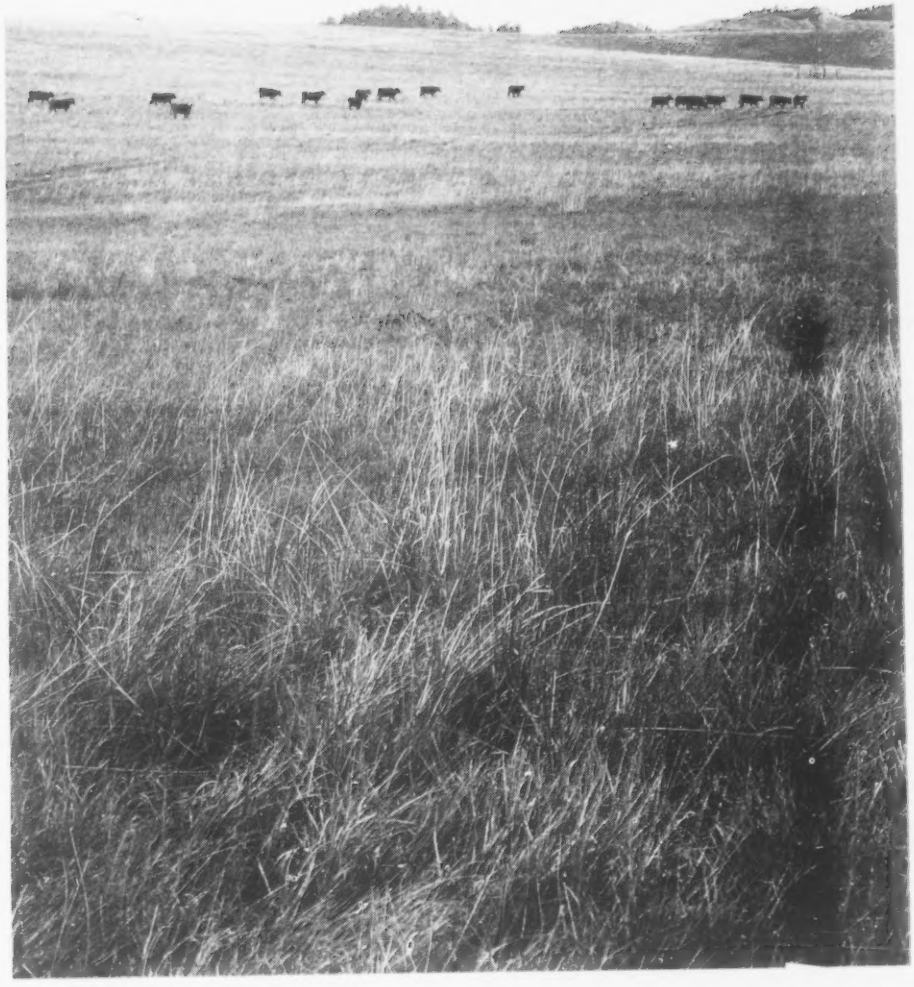
Regulatory program implementation
- Interim and permanent regulatory programs 3
- State programs 3
- Federal programs 3
- Federal lands programs 3

Mining and reclamation today
- Area mining 4
- Contour mining 4
- Mountaintop removal mining 5

Improved environmental protection: A national milestone achieved
- Erosion and sedimentation control 8
- Surface and ground water protection 12
- Acid and toxic drainage prevention and treatment 14
- Topsoil 16
- Excess spoil disposal 18
- Highwall elimination and return to approximate original contour 20
- Postmining land use 22
- Revegetation 28
- Blasting and explosives 31
- Wildlife restoration and enhancement 32
- Mine waste disposal 35
- Protecting historic and cultural resources 36
- Roads 38
- Remining 39

Appendixes
- Glossary 40
- Table I. Interim and permanent program permits issued, by mining type, 1977-86 42
- Table II. Acreage under permit, by mining type, 1977-86 43
- Table III. Acreage of reclamation bonds released, by bond type, 1977-86 44

References 46



The first permanent program mining permit under the Act was issued in December 1980 by the Montana regulatory authority. The permit authorized mining of a 1,738-acre site by the Western Energy Co. in Colstrip, Montana. Today, with mining completed, the site has been returned to grazing land that is being used by a local rancher.

INTRODUCTION

Surface mining of coal involves removing soil and rock that overlie coalbeds in order to expose the coal. Compared to underground coal mining, surface mining generally costs less, is less dangerous for the miner, and usually results in more complete recovery of the coal. However, it also results in much more extensive disturbance of the land surface, a situtation that can cause serious environmental problems unless the mined land is carefully reclaimed.

For many years reclamation of mine sites was not required by law, but as surface mining became more widespread during the 1930's the idea that reclamation would have to be mandatory started to grow. In 1939 West Virginia enacted the first law to regulate the coal mining industry, followed by Indiana in 1941, Illinois in 1943, and Pennsylvania in 1945. During this period coal production was greatly accelerated and surface mining of coal became much more prevalent. The demand for coal during World War II took priority over reclamation concerns, and little consideration was given to reclaiming the land after mining. Dangerous **highwalls** were left exposed, trees and other vegetation were buried by waste material dumped down the slopes below mines, **topsoil** was buried or washed away, landslides formed on the unstable hillsides, slopes eroded rapidly because of the lack of vegetation, bodies of polluted water formed in mine pits, streams became clogged with sediment, and streams and rivers were frequently polluted by **acid mine drainage**. This image of past surface coal mining remains vivid to many Americans who are unfamiliar with the way surface coal mining is regularly done today.

Following the wartime years, other coal-producing States instituted regulatory programs. Many required **permits** for mining, some included inspections, and a few had operators post a **performance bond** to ensure reclamation. However, due to the variations in these individual programs, it cost less to produce coal in States with less stringent reclamation requirements and gave operators in those States an economic advantage, generally at the expense of environmental quality.

In some Western States, the 1970's saw a strong demand for coal resulting from the Nation's need for increased electric power generation and the uncertainty of petroleum-based fuels. This increased demand resulted in a series of State laws aimed at controlling the environmental effects of surface mining. States including North Dakota, Wyoming, Colorado, and Montana passed laws in the late 1960's and early 1970's.

The lack of uniformity in the State programs and the increase in unreclaimed land and associated pollution of water and other resources caused a growing demand for nationwide regulation of surface coal mining, both to remove the economic inequities and to ensure an acceptable standard of reclamation. After many years of debate, Congress passed the Surface Mining Control and Reclamation Act (SMCRA), which was signed into law August 3, 1977. The Act established a coordinated effort between the States and the Federal Government to prevent the abuses that had characterized surface coal mining in the past. The law also applies to surface disturbances created by underground mining.

Two major programs were created by the law:

- An environmental protection program to establish standards and procedures for approving permits and inspecting current surface coal mining and reclamation operations; and
- A reclamation program for abandoned mine lands, funded by fees that operators pay on each ton of coal mined, to reclaim land and water resources adversely affected by pre-Act coal mining.

The Office of Surface Mining Reclamation and Enforcement (OSMRE) was created by the Act as a new Federal agency under the Secretary of the Interior to prepare the regulations for both programs and to assist the States financially and technically. In addition, the agency strives to achieve consistency among State programs and compliance with the law and regulations through regular oversight of State program effectiveness.

This report deals with the accomplishments of the environmental protection regulatory program during the first 10 years of the law. Another report, "Abandoned Mine Land Reclamation: 10 Years of Progress,"[*] describes the extensive accomplishments of the abandoned mine land reclamation program during the same period. Information on the availability of both reports can be obtained from the:

Public Affairs Office
Office of Surface Mining Reclamation and Enforcement
1951 Constitution Ave., NW.
Washington, DC 20240
(202) 343-4953

Important terms commonly used to describe mining and reclamation conditions or techniques appear in boldface type in the text the first time they are used and are explained in the glossary. To facilitate the description of real, on-the-ground accomplishments, photographs of actual reclamation have been used extensively. It should be noted that these photos are not of isolated examples of successful reclamation; they show numerous examples of good reclamation, throughout the country, that are typical of reclamation currently being achieved under the Act.

Tennessee Valley Authority

The Act established a cooperative program between the States and the Federal Government to prevent the abuses of surface coal mining that had prevailed in many areas. Prior to the Act surface coal mining often left a barren, unreclaimed landscape such as this view in eastern Tennessee. Although significant improvements in reclamation have occurred, many people incorrectly envision today's surface coal mining as looking this way.

THE SURFACE MINING CONTROL AND RECLAMATION ACT

The Act contains five principal regulatory provisions that form the basis for its implementation.

Performance Standards

Performance standards are intended to ensure that all surface mining is conducted to protect the environment and the public during mining and to ensure that the mined land is restored to productive use following mining.

Permits

Before anyone can develop a surface coal mine in the U.S., he or she must have a permit issued under the Act.

An application for a permit to conduct a surface coal mining operation is a detailed document that consists of descriptive text and numeric data covering the site of proposed mining and reclamation. Information must be furnished on premining conditions and land use, mining methods to be used, timing for each stage of mining and reclamation, how the requirements of each of the performance standards will be met, and the postmining land use. This site-specific data provides the **regulatory authority** with the information necessary to determine that the operation can be conducted in accordance with the performance standards.

Performance Bonds

Before a permit can be granted, an operator must post a performance bond sufficient to cover the cost of reclaiming the site in the event reclamation is not completed by the operator. The bond is not finally released until the revegetation of the site has been determined to be successful – after 5 years in the East and Midwest, and after 10 years in the more arid West. However, the bond can be partially released as various phases of reclamation are completed.

Inspection and Enforcement

If a violation of the Act or State surface mining and reclamation laws is observed, the inspector issues a notice of violation to the operator. The violation must be corrected within a specific time, and the operator may also have to pay a fine, the amount of which is determined by the severity of the violation. If the violation is not corrected, a cessation order is issued that immediately stops active coal mining, and the operator must pay a fine. If a violation is especially serious, such as creating an imminent danger to public health or safety or causing significant damage to land, air, or water resources, the inspector immediately issues a cessation order. A cessation order may also be issued if the operator has a pattern of consistent violations. A public hearing to discuss disputed issues may be requested by an operator who believes that a notice of violation or a cessation order is not justified.

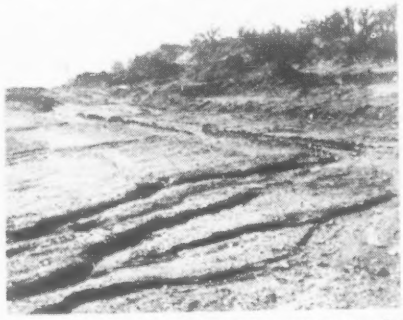
Lands Unsuitable For Mining

Congress recognized that certain coal deposits cannot be mined without damaging unique cultural or natural resources. As a result, the Act includes protection of these resources in two ways:

- A prohibition of mining within the boundaries of national parks, forests, wildlife refuges, trails, wild and scenic rivers, wilderness and recreation areas, and sites listed on the National Register of Historic Places, and within a restrictive distance of occupied dwellings, public roads, buildings, parks, schools, churches, and cemeteries; and

- A process that allows anyone who may be adversely affected by proposed mining to petition to designate specific lands as unsuitable for mining.

*When a Kansas mine operator went out of business, over 100 acres of unreclaimed mine spoil remained (**below**). The Nova Energy Bonding Company, working with the Kansas regulatory authority, reclaimed this site to productive hayland. Today, water conservation practices, such as diversion terraces and permanent impoundments constructed during the reclamation, have improved the land and created conditions that provide for a viable long-term agricultural use (**left**).*



Kansas Mined Land Conservation and Reclamation Board

REGULATORY PROGRAM IMPLEMENTATION

A primary objective of the Surface Mining Control and Reclamation Act is to establish uniform national standards for reclaiming land after it has been disturbed by surface coal mining. In recognition of the wide range of topographic, climatic, and geologic conditions in coal-producing areas, Congress provided that individual States may establish their own programs for regulating surface coal mining and reclamation on private lands.

Interim and Permanent Regulatory Programs

Congress recognized the importance of establishing regulations to implement the Act as quickly as possible, but it also recognized that preparation of such complex regulations would be a lengthy process. Consequently, a two-tiered schedule was established. An abbreviated interim program was put in place immediately, followed by a more extensive and detailed permanent regulatory program. The interim program regulations were published in December 1977, and mine permits issued by States after February 1978 had to conform with those regulations. Regulatory provisions contained in the interim program included 12 basic performance standards, continuation of existing State permitting, bonding, and enforcement processes (if these did not exist, they were not required), a Federal inspection frequency of once every 6 months, and the prohibition of mining in the specific areas listed in the Act.

Permanent program regulations were published in March 1979, following extensive review and comment from the public and the coal industry. The regulatory provisions in the permanent program expanded those found in the interim program by including implementation of all performance standards in the Act, a new permitting process, requirement for performance bonds, increased inspection frequency of one per month, a new enforcement process, and a process of designating lands unsuitable for surface mining. The regulations for this program have been revised several times since 1979. More revisions will be made as new mining and reclamation techniques are developed. Such changes were anticipated by Congress, and a provision in the Act for experimental practices encourages advances in mining and reclamation techniques.

State Programs

States have the principal role in implementing the Act. For a State to have authority for regulating coal mining operations it must enact a program that demonstrates its capability to carry out the provisions of the Act. Specifically, States are required to:

- Establish laws that are no less stringent than the Act and regulate all critical aspects of surface coal mining and reclamation operations;
- Provide penalties for violations of the laws, regulations, or permit conditions;
- Create an agency with sufficient administrative and technical personnel and adequate funding to operate the program; and
- Establish a process for the effective implementation, maintenance, and enforcement of a permit system for all coal mining operations.

Once a State's program is approved by the Secretary of the Interior, the State becomes the regulatory authority over surface mining of coal on private (non-Federal and non-Indian-owned) lands within its borders. During the period February 1980 to March 1983, 25 States developed legislation and regulations consistent with the Federal requirements and have been granted regulatory authority.

Federal Programs

Both the Act and the regulatory program encourage and support State authority over mining and reclamation. However, if a State chooses not to develop its own program, the Office of Surface Mining Reclamation and Enforcement is required to regulate all surface coal mining and reclamation operations within that State. The agency is also required to regulate all such operations if the State's proposal for a permanent program is not approved by the Secretary of the Interior, or if the State does not implement, enforce, or maintain its program adequately.

Nine States with coal reserves have elected not to prepare a regulatory program. Of these, only Washington has active surface coal mining. Tennessee repealed its regulatory program in 1984. Therefore, 10 States have Federal programs in effect. The Office of Surface Mining Reclamation and Enforcement also regulates surface coal mining on Indian lands and will continue to do so until enactment of additional legislation authorizing Indian Tribes to assume regulatory authority. Meanwhile, the agency provides technical and financial assistance to Indian Tribes in developing regulatory programs for tribal lands.

Federal Lands Programs

The Secretary of the Interior is required by the Act to implement a program for all surface coal mining and reclamation on federally owned land, a significant feature because the Federal Government owns major coal reserves. In the West, 60 percent of the 234 billion tons of identified coal reserves is federally owned. However, any State with an approved regulatory program may enter into a cooperative agreement with the Secretary of the Interior to regulate surface coal mining and reclamation on Federal lands within the State. Currently eight States have cooperative agreements to regulate mining and reclamation operations on Federal land.

MINING AND RECLAMATION TODAY

Mining and reclamation procedures that meet with the Act's requirements are illustrated on pages 6 and 7 for each of the three major surface mining methods – **area mining, contour mining,** and **mountaintop removal mining.** The three methods involve the same basic procedures: Clearing the land of trees and other vegetation, removing the topsoil and **overburden,** mining the coal, and reclaiming the land. Although all three methods would not likely be seen in one view such as this, the mining and reclamation methods can be compared to get a basic understanding of reclamation processes under the Act.

Area Mining

The area mining method is commonly used to mine coal in the flat to moderately rolling terrain found principally in the Western and Midwestern States. In this method, the overburden is excavated down to a coal seam and then the mining area is enlarged horizontally to expose and remove the coal. In the West coal seams are commonly 10 to 20 feet thick, with up to 100-foot seams in the Powder River Basin of Wyoming; in the Midwest coal seams are typically 3 to 7 feet thick and 75 to 100 feet below the surface. The life of some mines in the West may be more than 50 years. Because of the large size of area mines and their relatively unrestricted sites, enormous equipment is used in removing overburden and reconstructing the land.

The area mining operation in the illustration is on land that was formerly used for farming. As can be seen, the agricultural use is being reestablished immediately following reclamation. The mining is proceeding across the land toward the left side of the area. The initial excavation was made far enough away from the stream along the right edge of the area to prevent damage to the stream.

The coal under most of the area has been removed, and reclamation has been completed on some of the land. For example, some of the cattle in the foreground and those in the feedlot behind the silo are grazing on reclaimed land that was initially mined by this operation.

On the far left of the illustration, the topsoil from the unmined area is being removed by scrapers, transported across the area of active mining, and immediately spread on the land on the right that is being reclaimed. (Reclamation of the land as soon as practical is called **contemporaneous reclamation** and is required by the Act.) A large stockpile of topsoil in the center background of the operation, removed from the initial mining cut, has a vegetative cover to prevent erosion and will be spread over the last mined area to be reclaimed.

After blasting, the loosened overburden is removed by **dragline** and is dumped onto an adjoining previously mined area in one motion. In some mining operations, overburden is removed with power shovels, bulldozers, or scrapers rather than with draglines.

The exposed coal seam can be seen where the overburden has been removed. The coal is removed with power shovels and loaded into large trucks, which carry the coal to the **preparation plant** (behind the dragline). After the coal goes through the plant, it is loaded into railroad cars, possibly for transportation to an electric generating plant, or to a port loading facility for export.

The ridges formed by the dragline as it dumps the overburden are regraded with bulldozers, and topsoil is spread to provide a finished surface similar to the surface before mining. The land is then tilled using traditional farming methods and, as shown, crop- and pastureland are reestablished. After reclamation is completed, the productivity of the land will be similar to its productivity before the mining operation began, and sometimes higher.

After a permit is issued, the land to be mined is cleared. Timber suitable for lumber is usually cut and hauled to a sawmill. Remaining woody vegetation is removed from the surface because it would interfere with topsoil removal and replacement.

Contour Mining

The contour mining method is typically used in the mountainous terrain of the Eastern U.S., where coal seams are exposed in **outcrops** on hillsides and mountainsides. First, a cut is made in the hillside above a coal seam and the coal is further exposed as the overburden is removed. The mine is then enlarged by successive cuts that follow the coal seam around the side of the hill. The mining extends into the hill to the point where the overburden is too thick to make further exposure of the coal economic. **Auger mining** often is used at this stage to maximize coal recovery.

The contour mining operation in the illustration is removing multiple seams of coal. Reclamation has been completed in the foreground. Active mining is proceeding around the hill in the middle foreground. A **sedimentation pond** for this operation was constructed adjacent to a natural drainage swale just below the mining area. As the reclamation is completed, such ponds become unnecessary and will often be removed and the entire site reclaimed and planted.

After the area has been cleared and blasted, the **spoil** in the active mining area is loaded by front-end loaders into trucks and taken to the previously mined area, where it is spread. As coal is uncovered, it is loaded and trucked to a coal preparation plant. Smaller pieces of equipment are generally used in contour mining than in area mining because of the restricted working area.

As can be seen in the right foreground of the cross section, a temporary highwall is left in the hill at each level of mining after

the overburden and coal have been removed, because the mining operation has cut into the hill. One of the principal reclamation requirements for contour mining is that highwalls must be covered after mining is completed. Spoil is trucked from a working cut, dumped on the mined-out area, spread with bulldozers until it covers the highwall, and compacted as necessary to ensure stability of the reclaimed hillside.

As can also be seen in the cross section, a ridge of undisturbed natural material 15 to 20 feet wide is intentionally left at the outer edge of the mined area. This barrier adds to the stability of the reclaimed slope by preventing the spoil from slumping or sliding downhill.

Following **backfilling** and **grading** of the spoil with bulldozers, the topsoil is spread and a seedbed is prepared. In **steep slope** conditions, such as in the middle foreground of the illustration, a slope disk may be used to prepare the topsoil for seeding without having to drive equipment on the steep slope. **Hydroseeding** may be used to aid in establishing vegetation and preventing soil erosion on steep terrain. This truck-mounted equipment makes it possible to seed the steeply sloping ground from the base or top of the reclaimed slope without disturbing the graded topsoil.

In the completed reclamation area shown in the center foreground of the illustration, seedling trees and shrubs were hand planted to enhance the wildlife habitat, stabilize the site, and provide a long-term economic return from the reclaimed land.

Mountaintop Removal Mining

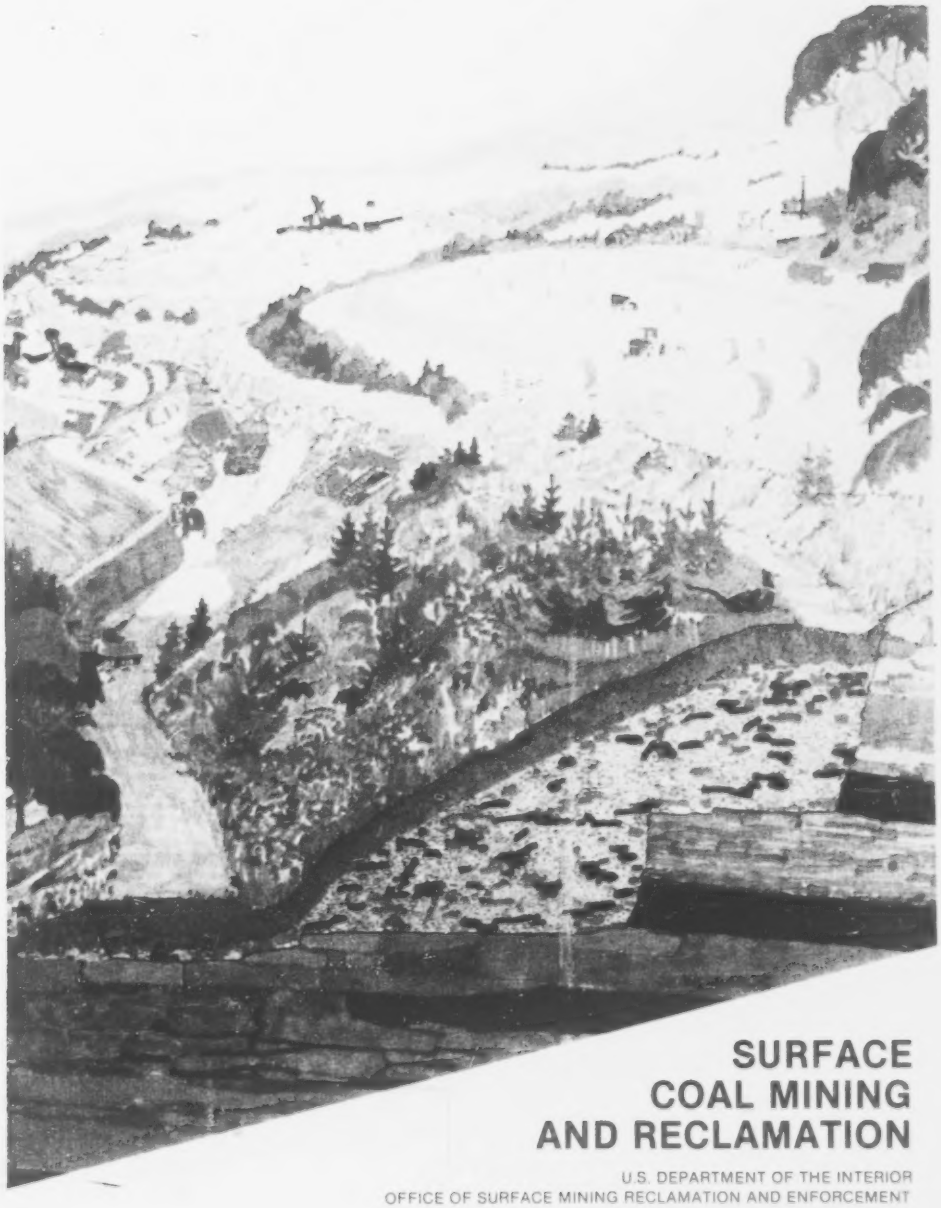
The mountaintop removal method is used predominantly in the East to remove coal underlying the tops of mountains. Instead of mining along the contour around the perimeter of a mountain, the top of the mountain is area mined and either returned to its **approximate original contour** or removed entirely. Either procedure results in almost 100-percent removal of the coal seam. Removing the top of the mountain results in a unique opportunity to create relatively flat terrain that is suitable for residential, agricultural, and other development in areas where much of the natural terrain is too steep for any developed economic use.

The flat or very gently rolling area on the right side of the illustration is land reclaimed after a mountaintop removal operation was completed. Many new land uses can be established on reclaimed mountaintop removal mining sites. The illustration shows a mined area reclaimed for agricultural use in the foreground and for the site of a new village in the background. In the far background to the left of this reclaimed operation, another mountaintop removal operation is underway on an adjacent hilltop.

To provide a flat surface for the operation of equipment, a first cut is made parallel to the top of the ridge after the vegetation and topsoil have been removed. The overburden is loosened by blasting, removed in a series of parallel cuts, and loaded into trucks in a fashion similar to that of contour mining. If the entire top of the mountain is to be removed, the spoil created by the mining is disposed of on an adjacent area. Because mountaintop removal operations are isolated from other mining areas where this spoil can be disposed of, the spoil is usually placed in a **valley** or **head-of-hollow fill.** Once the coal seam is uncovered, the coal is removed and trucked to a preparation plant in a fashion similar to the other types of operations.

In the illustration, such a fill is located in the valley immediately to the left of the active operation. Here, the spoil was placed at the head of the narrow, steep-sided valley or hollow. In preparation for filling this area, the vegetation and soil have been removed and a rock drain constructed down the middle of the area to be filled, where a natural drainage course previously existed. When the fill is completed, this underdrain will form a continuous water runoff system from the upper end of the valley to the lower end of the fill. Typical head-of-hollow fills are graded and **terraced** to create permanently stable slopes.

During active mining, large areas may be disturbed. On the Black Thunder Mine in Campbell County, Wyoming, hundreds of acres are disturbed and reclaimed annually in removing a 60- to 70-foot-thick coal seam.



SURFACE COAL MINING AND RECLAMATION

U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

IMPROVED ENVIRONMENTAL PROTECTION: A NATIONAL MILESTONE ACHIEVED

Erosion and Sedimentation Control

Because surface mining removes the original plant cover from the land and exposes the soil, snowmelt and rainfall can pick up sediment and erode mined lands much faster than undisturbed areas, until the mined land is stabilized by revegetation.

Sediment control is an important aspect of reclamation because large amounts of sediment can clog streams, increase the risk of flooding, damage irrigation systems, harm fish habitat, and limit the use of water for other purposes. Stream quality can be affected many miles downstream from the mine. Before the Act went into effect, many streams were degraded by sediment from mines that did not have adequate sediment control.

Sediment is controlled through careful planning and design incorporating a variety of measures that work together to reduce soil erosion at the mine. Disturbed areas are graded, and some areas terraced, to achieve stable slopes, reduce runoff water velocity, increase infiltration, and divert runoff into drainage channels so that it flows away from erodible, unvegetated areas. Grading along the slope contour and scarifying unvegetated slopes with bulldozer track marks help prevent erosion by slowing down the water. Runoff from **haul roads** is controlled by culverts and roadside ditches. Sedimentation ponds or other forms of sediment control are required at all mines to minimize the amount of sediment leaving the site.

Sedimentation ponds, the most typical form of sediment control, are usually constructed to collect all water draining from the mine in order to trap sediment before the water leaves the site. Several ponds are often arranged in series to maximize the sediment-trapping capacity, as seen here on this reclaimed Pattiki, Alabama, mine site (top left).

Sedimentation ponds are designed to hold water and allow sediment to fall to the bottom. After much of the sediment has been removed, the water flows out over a rock-lined spillway at the top of the pond. This pond under construction on a mine in Wise County, Virginia, will drain a large, level portion of a mountaintop removal mine. The pond will be removed after reclamation is complete (right).

This sedimentation pond on an eastern Kentucky mine collects drainage from nearby mining through riprap drains (left). The muddy appearance of the water is caused by a recent rainstorm that has carried in sediment.

At its Round Hill Mine in Laurel County, Kentucky, the Jamison Construction Co. has created a permanent impoundment from a sedimentation pond (top right). Throughout its 4-year function as a sedimentation pond, there were no adverse impacts on designated wild and scenic areas downstream from this mine along the Rockcastle River. As a permanent pond, the impoundment receives clear drainage from the reclaimed site and has been stocked with bass, bluegill, and catfish.

Erosion control practices are also important in arid and semiarid areas where storms are brief but intense, and wind erosion is significant. On the San Juan Mine near Farmington, New Mexico **(top left)**, *most precipitation is held in place by furrow grading along slopes both to prevent erosion and retain all available moisture for plant use.*

A metal check dam on the Ayrshire Mine in Warrick County, Indiana **(left)**, *prevents water surges that could cause gullies and damage downstream sedimentation ponds.*

Wide terraces at this mine near Raton, New Mexico **(bottom left)**, *prevent erosion on the long, steep reclaimed slopes. This drainage control technique is important in areas of limited rainfall because of the intensity of individual rainstorms.*

This diversion ditch **(below)** *shows the fine sediment trapped after grading and before the revegetation stages of reclamation. This diversion prevents surface water from eroding gullies in the smoothly graded slopes.*

Carefully positioned and properly sized **riprap** *is one of the most effective techniques for preventing channel erosion* **(bottom right)**. *Here, the drainage from a haul road flows over a riprapped channel into a sedimentation pond.*

Dave Nilson, reclamation specialist for the Glenharold Mine in Mercer County, North Dakota, unrolls wood fiber netting to line drainage channels at the bottom of mulched and reseeded slopes **(bottom far right)**. *The netting prevents erosion until grass has been established and stabilizes the shallow channel. The material breaks down after the vegetation is established and adds organic material to the soil.*

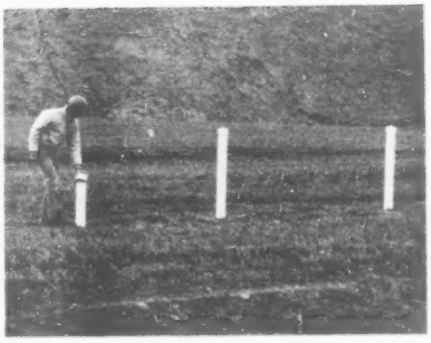
Early maintenance work on recently revegetated hillsides can prevent small rills from becoming large gullies. Mulching and reseeding are done by hand to prevent additional disturbance that could be caused by large equipment **(top right)**.

Surface and Ground Water Protection

Water is a valuable natural resource, particularly precious in **arid and semiarid regions**. A reliable, high-quality water supply is vital to a wide variety of domestic, agricultural, and industrial activities. Since passage of the Act, surface coal mining is conducted so that the hydrologic balance of the mine and adjacent areas is maintained and the approved postmining land use for the reclaimed mine site is supported by an adequate water supply.

Today, surface and ground water protection begins with planning for the proper handling and disposal of materials that could cause acid or toxic contamination. Mining and reclamation practices are designed and carried out to minimize water pollution and changes in flow. Surface water quality and quantity are monitored to ensure that impacts on the hydrologic balance are minimal.

Impacts on watercourses are avoided, when necessary, by the practice of **stream diversion.** An existing stream may be routed around the area to be mined after a detailed design study is performed to ensure that the new stream course will be stable, will provide protection against flooding, and will prevent additional turbidity or sedimentation in streams outside the mining area.



Monitoring wells are required if there is potential for an adverse effect on the ground water. Here, Bill Schwarzkoph, Reclamation Superintendent for the Western Energy Co. mine in Colstrip, Montana (above), examines 3 wells that have been drilled at different depths: approximately 150 feet below the surface in undisturbed rock, in spoil at approximately 80 feet, and in spoil 35 feet below the surface. By monitoring these wells, changes in the ground water can be detected.

In keeping with the local environment, a riprap-lined stream bed was constructed at the Cimarron Mine in Raton, New Mexico (right), to divert a stream away from the underground mine portal. Although this region receives less than 15 inches of rainfall annually, some heavy rains do occur and the stream flows actively during short periods of the year.

The Act requires careful planning to prevent off-site degradation of surface water supplies. Evaluation of local and regional impacts on water quality and quantity are necessary for permit preparation. Data from U.S. Geological Survey monitoring stations, such as this one located near Steamboat Springs, Colorado (left), are used to collect basic surface water information.

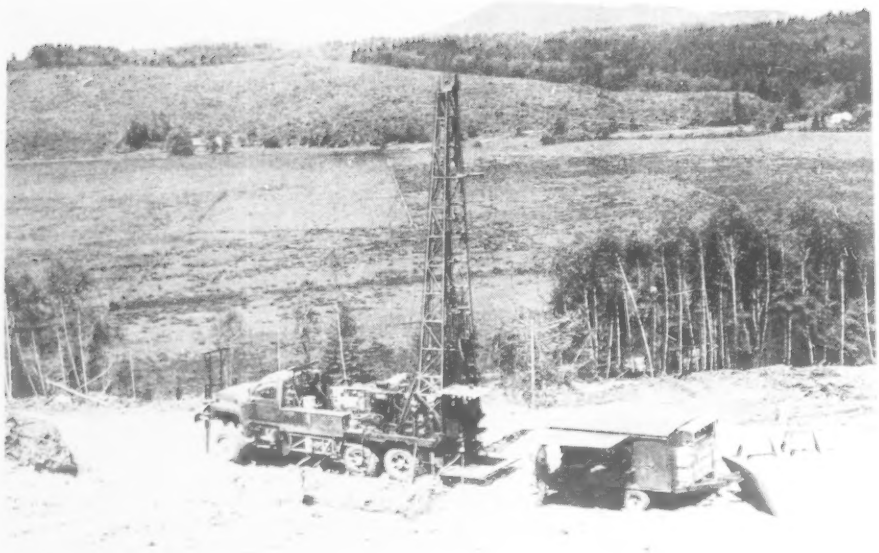
Acid and Toxic Drainage Prevention and Treatment

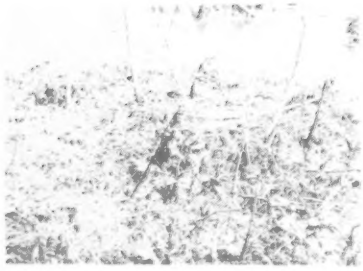
Sulfur-bearing compounds, especially **pyrite**, and toxic elements are present in certain coalbeds, overburden, and soils. These materials can cause water pollution and revegetation failure if they are not handled and disposed of properly. The sulfur in pyrite can oxidize to form sulfuric acid when exposed to air and moisture, and if present in sufficient quantity will result in acid mine drainage. Acid mine drainage kills fish and vegetation and can create high concentrations of toxic elements that make surface and ground water generally unusable for livestock, domestic uses, or irrigation.

Selective handling and placement of potentially acid-forming materials limit contact with air and water, thereby preventing formation of acid drainage or extremely acid mine soils. The mine operator analyzes overburden and soil samples to identify potentially acid- and toxic-forming materials. The analysis is included in the permit application, along with a plan for handling and disposing of the materials.

The regulations require exposed coal beds and acid- and toxic-forming materials to be covered with nontoxic materials or treated to eliminate their impact on water quality and revegetation. Exploration holes, underground mine entries, auger holes, boreholes, wells, and other exposed underground openings must be cased, sealed, or otherwise controlled to prevent acid generation and drainage.

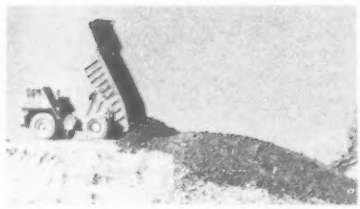
Water treatment is necessary when water flowing from the mine does not meet the Environmental Protection Agency standards for acidity, iron, or manganese.





Topsoil

Topsoil is important in reestablishing native vegetation and crop, forage, and timber production. Subsoil and weathered rock overburden beneath the topsoil supply additional nutrients and moisture for plant growth. The removal and replacement of all topsoil is required by the Act unless it is demonstrated that selected subsoil or spoil is better suited to grow plants. Topsoil is removed as a separate layer before mining and is either spread on nearby regraded areas or, if necessary, temporarily stockpiled. Topsoil is spread to the appropriate depths for the approved postmining land use. **Prime farmland** topsoil and subsoil may be handled with special care by using spreading techniques that minimize compaction that would hinder root penetration and water absorption by new seedlings.



Before mining, topsoil is removed and stored nearby for use in reclaiming the site. Since the topsoil is so vital to the success of the reclamation, it is carefully separated and marked. Here, OSMRE Reclamation Specialist Wayne Dempsey ***(bottom left)*** *inspects the temporary vegetative cover that prevents erosion and degradation of the stored topsoil.*

At the Pratt Mining Co. in Kanawha County, West Virginia, topsoil is being hauled to the reclamation area to be spread after final grading of spoil ***(left)****. Bulldozers are used to spread the topsoil evenly over the land surface* ***(top right)****.*

Topsoil that is temporarily stored under proper conditions retains much of its value for growing plants. This prime farmland topsoil being examined by OSMRE Reclamation Specialist Jack Simpson at an Illinois mine ***(center right)*** *is being spread over the lighter colored subsoil to ensure productive crop yields.*

Topsoil removal and handling are especially critical in the Midwest where prime farmland must be restored to its former productivity level. The Freeman United Industry Mine utilizes a ***bucketwheel excavator*** *to move soil without the compaction common to other types of equipment. The dark, organic-rich topsoil deposited by the bucket wheel on the lighter colored subsoil is ready to be spread by bulldozers with minimal compaction.*

Because of the importance of prime farmland reclamation, the Pittsburg & Midway (P & M) Coal Mining Co. has set up experimental plots in Missouri and Kansas to test its soil-substitution technique. Here, Mark Prenio (left), engineer at the Midway mine near Amsterdam, Missouri, shows Kansas Soil and Revegetation Specialist Bill Joseph a test plot of newly planted grain sorghum ***(bottom center)****. This plot has a total of 16 inches of replaced soil that contains a layer of topsoil and a layer of subsoil. An adjacent plot contains 40 inches of the same material, plus additional subsoil. Based on productivity results from these test plots, new soil-substitution practices may be allowed.*

17

Excess Spoil Disposal

Mining operations, in removing overburden from above the coalbed, blast or break up the layered rock into angular, broken fragments. The volume taken up by the spoil is generally greater than that occupied by the rock before mining. In steep slope areas with hard sandstone or limestone overburden, the volume of spoil is much more than needed to return the site to its approximate original contour. Excess spoil must be disposed of in a safe and environmentally sound manner. Before the Act, excess spoil was often pushed or dumped from the mining **bench** onto undisturbed steep slopes below, resulting in hazardous and environmentally damaging slides.

Excess spoil is now disposed of in valley fills in the upper reaches of valleys adjacent to the mined area. The fills are carefully engineered and constructed for stability. Terraces and diversion ditches on the fill control surface water flow to prevent erosion. Ground water that seeps into the fill is channeled through internal drains following the original drainage pattern.

81-309 0 - 88 - 7

*Today's mine operator disposes of spoil that is not needed for reclamation in valley or head-of-hollow fills. This valley fill was constructed by Cumberland Collieries in Wise County, Virginia, on their mountaintop removal mine (**bottom left**). The terraced surface is being revegetated to reduce surface erosion. Riprap-lined channels along the side of the fill drain surface water. It is easy to see how the terraced fill slopes blend into the reclaimed area in the foreground.*

*A terraced valley fill that includes 2.5 million cubic yards of spoil at the Sorg Mine in Noble County, Ohio, was designed and constructed by the B & N Coal Co. (**above**). Diversion ditches are lined with handlaid riprap sized to match anticipated water velocities. Smaller rock was used at the top, where flow velocity would be least, and larger rock was placed downslope, where velocity would be greater. These stable slopes blend gently into the original grade and result in a landscape characteristic of the natural terrain.*

*The Colowyo Mine in western Colorado removes several coal beds in its operation, creating large amounts of excess spoil. Under an experimental practices permit, normal valley fill designs were modified by the construction of a series of backfill layers up to 200 feet in thickness (**top left**). This successful valley fill technology has been approved by the regulatory authority for future use on this mine.*

Highwall Elimination and Return to Approximate Original Contour

As overburden and coal are removed a highwall is formed, with a flat working bench at its base. Highwalls can be more than 100 feet high and can extend thousands of feet. Exposed highwalls can be a safety hazard, and may have coal beds and acid- and toxic-forming materials open to weathering and the consequent formation of acid drainage. Highwalls also can be a barrier to movement across the area.

One of the most widespread and dramatically visual problems prior to the Act was highwalls that were left exposed when a mining operation was completed. Unreclaimed pre-Act surface mines throughout the country resulted in a variety of conditions involving highwalls that were left exposed and overburden that was pushed down the hill or piled in ridges without regrading. Over the past 10 years, operators have improved overburden-handling techniques that result in effective regrading. Even under steep slope conditions, reclamation has resulted in stable slopes that cover the highwall and provide a finished grade that resembles the premining conditions.

The Act requires that all highwalls created by current mining be covered. Generally this is accomplished by placing spoil against the highwall and grading it so that the contour of the land, after the highwall is covered, approximates the original slope. Also, the Act requires that backfilling and grading, followed by top-soiling and revegetation, are to be coordinated with mining and completed as quickly as possible.

Unreclaimed highwalls and overburden pushed onto the downslope are practices of the past. On this Ohio mine a bulldozer moves spoil to cover a highwall before regrading, topsoiling, and revegetation (top left).

A regraded and mulched slope at the Helena Mining Co. operation in Pike County, Kentucky (left), has been blended with the surrounding terrain.

The final reclaimed slope at the Hacker Mine in Laurel County, Kentucky (above), closely approximates the original contour of the land, leaving no trace of the highwall.

Postmining Land Use

With proper reclamation, mined land can be returned to its premining use, or a new use can be developed. The Act provides several ways that coal mine operators working with landowners can take full advantage of postmining land use opportunities while meeting all regulatory requirements. A variance from the requirement for regrading to approximate original contour is available when the operator reclaims the site to support an improved use that is better for the landowner or the local community. For example, the opportunity to shape the land to a form and condition more suitable for certain uses can be allowed. Steep premining conditions of unimproved forest can be reclaimed, under a variance, to provide flat land that can be developed into valuable real estate.

Generally, coal mining does not occur close to developed towns or villages. Thus the opportunity for urban uses is limited. However, in Pikeville, Kentucky (below), a town located in a valley surrounded by steep terrain, mining is providing a unique opportunity for needed building sites. At the edge of town, the Clark Elkhorn Coal Co. is completing a mountaintop removal and contour mining operation. Working with the landowner/developer, home sites are being developed through a combined planning and reclamation effort. The reclaimed mine will provide over 100 acres of flat land with views of Pikeville and the surrounding eastern Kentucky mountains in the distance. One county resident remarked, "More money will be made from the sale of building lots on the reclaimed land than was made from the sale of coal."

*Because mining is a temporary use of the land, one of the basic objectives of the Act is to see that operators return mined land to its original use or a higher alternative use. This Laurel County, Kentucky, mine was reclaimed to farm land that is completely integrated into the existing agricultural landscape (left). Slopes were graded to provide gentle roll*ing hay fields draining into a permanent impoundment that is stocked with fish.

Land reclaimed for hay production is another common use throughout the country. On the Clemens Coal Co. mine in Crawford County, Kansas (above), the operator is managing the land prior to bond release by cutting hay and using it for mulch on other areas of the mining operation.

One of the most common postmining land uses is pastureland. On the Cannelton Industries Mine near Charleston, West Virginia (top left), cattle are grazing on recently reclaimed land that was previously unimproved forest.

Following its formation by the Union Coal Co. in West Union, Virginia (*right*), the landscape has experienced several changes. Reclamation of the mine included a broad, open area with shallow contours that are more pleasing to the eye and safer before mining.

An amateur golf tournament, complete with spectator gallery, is underway in Montana, outside Sarpy Basin mine's control area (*top right*). Result of an experiment, the event has proved fun for all and shows promise of being used as an organic grazing area for dairy cattle.

Another innovation, continuing until 1977, the Olivet Country Scene Drawing, judged entries sent to the Basin Electric Marketing Co. for the best of an old tradition (*top center*).

The reclaimed land in Washington, Pennsylvania, is proving to have grown to harvest size in only 5 years (*top left*). Evergreen trees were allowed to grow on some areas prior to passage of the 1977 Act, but the advancement since then has been remarkable, and trees can be harvested.

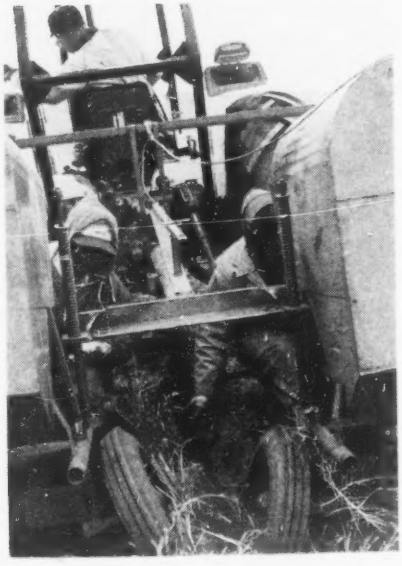
North American Coal Corp. Permit Coordinator Diana Warren takes time off to catch a large mouth bass from a permanent impoundment that has provided water for the operation of an underground mine (*bottom left*).

Alternative land uses possible under State and Federal re
tions have resulted in a range of land improvements. Ov
Kansas, landowner Rod Monroe constructed his home and
equipment buildings on reclaimed land where the Oswego
Co. had its coal loading facility (right). The disturbed la
this site has also been very successfully returned to croplanc
intensive forage production (far right).

Mining began at the Washington Irrigation and Develop
Co., Centralia, Washington, in 1971. Before mining, the s
sloped mountain terrain supported mixed conifer and hardv
forests that produced 10,000 board feet per acre of timber
60-year rotation. The principal thrust of the reclamation
gram is to return 11,000 acres affected by mining to a hi
production of 30,000 board feet per acre on a 55-year rota
using hybrid conifers (above). To achieve this high yield
land is being reclaimed to a more level condition, makin
use of the requirement to separate, store, and reuse top
Additionally, the company is enhancing the fertility of
mine soils by adding activated sewage sludge from Olympia
Seattle, thereby providing a valuable disposal service to reg
population centers.

Revegetation

The Act requires the establishment of a healthy, permanent vegetative cover on all land affected by coal mining. Stabilizing the soil with permanent vegetation is one of the principal means of minimizing erosion and reducing stream siltation, and it is often critical to the postmining land use. Generally in the West, the plant species used are native to the area and capable of self-regeneration on the site. Introduced species are often used in the East for specific postmining uses. The types of vegetation, specified in the permit, are based on the premining vegetation and the postmining land use. Straw or hay mulches or chemical soil stabilizers frequently are applied during or after seeding to prevent erosion and retain moisture. Operators are responsible for maintaining new vegetation until it is determined to be successful – for a minimum of 5 years in the East and Midwest and a minimum of 10 years in the semiarid West.



The Act requires that revegetation closely follow mining, to help prevent environmental impacts. Second-year growth of grasses in the foreground and bright-green first-year winter wheat adjacent to the active mining ***(top left)*** *reflect immediate reclamation at the Sequatchie Valley Coal Co. mine in eastern Tennessee.*

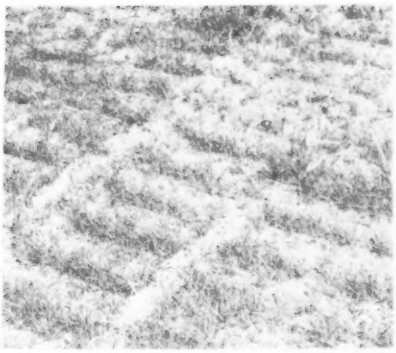
After topsoil is replaced, seed must be spread over the soil and stabilized to ensure germination and establishment. Hydroseeding, shown here ***(bottom left)****, spreads a mixture of seed, water, and fertilizer without driving mechanized equipment over the site. Using this technique, even steep slopes can be seeded.*

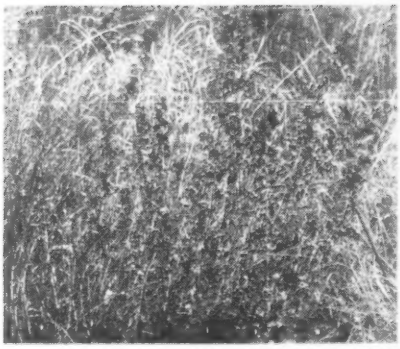
A tractor-drawn tree-planting machine is used to plant seedlings on this moderate slope area ***(above)****.*

Bulldozer tracks across the slope provide niches that trap runoff for use by grass seedlings ***(top right center)****.*

Native plants are used almost exclusively on western reclamation sites because of their endurance in arid and semiarid climates ***(bottom right center)****. Native plants are also planted in the Midwest* ***(right center)*** *and become naturally established on many reclaimed eastern mines* ***(bottom far right)****.*

The Richland Coal Co. has seeded this reclaimed contour mine in Scott County, Tennessee, with both grasses and legumes ***(top far right)****. These plants have provided a very rapid cover that prevents erosion, increases soil fertility through natural nitrogen fixation, and provides a root structure that stabilizes the soil on the steep slopes. Native maples and other trees are rapidly becoming established and will eventually become the dominant tree cover.*





29

An unusual revegetation technique eliminates planting by cutting existing vegetation, including trees, into a thick mulch, followed immediately by removal and redistribution of the topsoil mixed with the mulch. Small pieces of the woody vegetation sprout and rapidly become established. This reclaimed slope on the Eckman Park Mine in Routt County, Colorado **(left)**, *illustrates the success of this revegetation technique. A native plant community containing many hard-to-establish species such as big sagebrush, snowberry, serviceberry, aspen, rose, silver sagebrush, and currant was successfully established. OSMRE Reclamation Specialist Scott Fisher evaluates an aspen tree established in this manner* **(bottom left)**.

Shrubs are an important part of many natural plant communities and have particular value as food and cover for wildlife. A front end loader is used at the Trapper Mine in Moffat County, Colorado, to transplant shrubs from land that will be mined to areas being reclaimed **(below)**. *Bruce Humphries of the Trapper Mining Co. reports very few losses of shrubs transplanted in this manner. Large deer and elk herds inhabiting the permit area and surrounding lands make extensive use of these shrubs.*

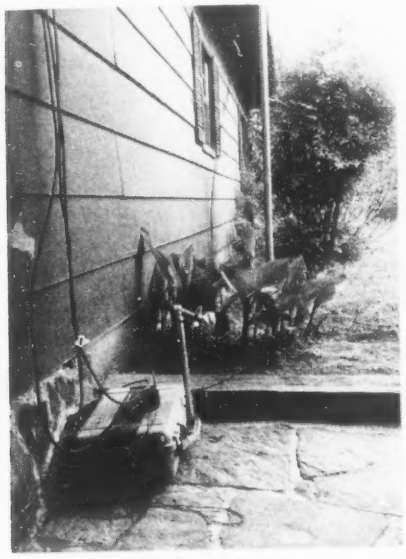
Blasting and Explosives

Mining requires the use of explosives to break up rock layers in the overburden and sometimes the coal itself. To prevent damage to nearby dwellings and other structures, blasting must be carefully planned and carried out by qualified blasters. Prior to the Act, blasting was sometimes performed by untrained personnel and occasionally damaged nearby dwellings. Now blasting can be done only by State-certified blasters. A preblasting survey of dwellings within a half-mile of the mine is performed to identify any conditions that may require special procedures. Signs and audible warnings are provided before blasting. Access within the blasting area by unauthorized persons is restricted.

*A truck-mounted drill is boring holes for explosives used to blast the rock above a second, lower coalbed in a pit at the Jim Smith Contracting Co. Providence Mine in Webster County, Kentucky (**right**).*

*After three warning calls from a siren to alert all persons nearby that a blast is imminent, the explosion sends smoke billowing high into the air (**bottom right**). After the blast, the loosened overburden is removed by front-end loaders and trucks.*

*The audible and ground vibratory effects of blasting on residences in the vicinity of active mines are carefully monitored by mining companies. Here, the Taft Coal Co. used a seismograph and recorder to ensure that blasting effects from its Dixie Springs Mine in Walker County, Alabama (**below**), were within permissible levels.*



Wildlife Restoration and Enhancement

People do not usually picture wildlife when they think of the landscape that results from surface coal mining reclamation. However, wildlife habitat is actually one of the more common postmining land uses. Many mining operations using accepted reclamation techniques reestablish or even improve those habitats. Among the techniques used are:

- Contouring the land to better suit desirable species of wildlife, including game species;
- Introducing adapted and selected species of plants to provide browse and forage;
- Creating impoundments with safe, clean water that will attract and support a variety of aquatic and terrestrial animals; and
- Stocking fish in impoundments to provide recreation opportunities for the public.

Such achievements reflect the intent of the Act to minimize the adverse impacts of coal mining on fish and wildlife habitats and to enchance those environmental values where possible.

*Revegetation frequently includes the establishment of plants that provide food and cover for wildlife. Here in western Kentucky, OSMRE Reclamation Specialist Glenn Wyatt examines vegetative cover that includes hairy vetch, fescue, and lespedeza that provides enhanced habitat for upland game birds (**top far left**).*

*On a mine in Mercer County, North Dakota (**bottom far left**), a tall-shrub community including chokecherry, American plum, woods rose, and silver buffaloberry was established on reclaimed land in 1985. Today, shrubs in this area provide food and cover for grouse, pheasant, and deer.*

*To encourage reestablishment of bluebirds, mine operators frequently provide nesting boxes in wildlife reclamation areas. Here, Mike Ellis, Environmental Engineer for the AMAX Coal Co., sets up a nesting box in Indiana (**bottom center**). By providing both a nesting site and plants that provide cover, the reclamation professionals ensure that bluebirds become permanently located on the reclaimed site.*

*Major efforts are being made to establish native shrubs that provide browse for deer on reclaimed land in the Western States. Deer that frequent the edge of reclaimed areas are encouraged to reinhabit the site (**below**).*

*On the York Canyon Mine near Raton, New Mexico, Reclamation Biologist Mike Coates examines rodent and rabbit habitats that were created by leaving small rock piles on the reclaimed area (**left**). Small rodents are an important link in the natural food chain, and without these rock dens the native birds and animals that prey on the rodents would not reinhabit the area.*

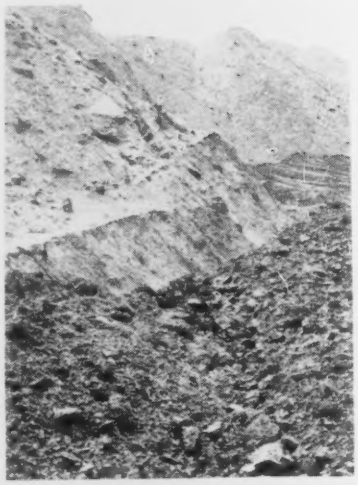
*Permanent impoundments are frequently constructed on reclamation sites. Although they are not specifically designed to enchance wildlife habitats, most of them provide excellent cover and a water environment that together increase the potential for wildlife to quickly become established on these sites (**bottom**). Many impoundments create an aquatic habitat where none existed before mining. Careful planning of such structures, as required by the Act, can significantly enhance their wildlife value.*

*Small mammals such as this marmot are commonly found on reclamation areas in the West (**left**).*

Mine Waste Disposal

Mine waste includes the rock and clay that must be removed from mines during development and mining and the noncoal residue from coal cleaning. Such waste, particularly the coal cleaning residue, often contains a large amount of pyrite or toxic material which must be carefully disposed of to prevent pollution of surface or ground water. Tremendous progress has been achieved over the past 10 years in developing and applying environmentally safe disposal practices. Two of these practices are:

- Conducting extensive premining surveys to select disposal sites that will minimize infiltration into ground water; and
- Sealing the waste material with clay barriers to further eliminate infiltration.

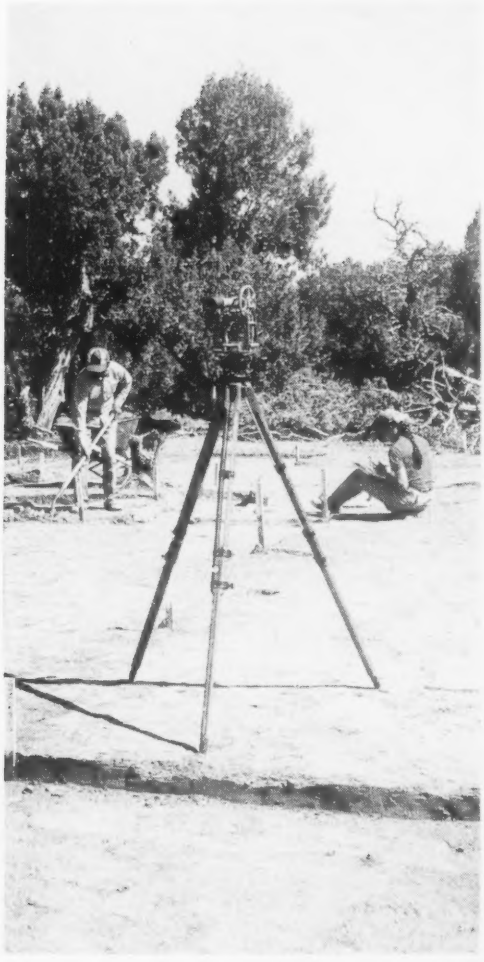


*Surface mines are often used for the disposal of refuse or waste material generated by the mine's coal-cleaning process. In this Indiana mine (**right**), refuse is being placed in a pit that is being backfilled. The refuse will eventually reach the level indicated by the stake next to the mine engineer standing on the left slope of the pit. This elevation is predicted to be the top of the water table that will be reestablished after mining has been completed. Placing the refuse below the water table will minimize the formation of acid mine drainage by reducing the contact with air.*

*Another method of disposal of coal refuse includes surface disposal in piles that could be the source of acid or toxic drainage if not properly reclaimed. The 40-acre Powhatan No. 5 refuse disposal site in Belmont County, Ohio, before reclamation (**bottom left**), and after 129,000 cubic yards of soil were spread on the refuse material (**bottom right**).*

Protecting Historical and Cultural Resources

Before mining can begin, the State identifies areas which are unsuitable for mining. Operators then plan the mining to avoid any such protected areas; they design the operation so as not to interfere with the functions or values that are vital to the protected areas.



As archeological sites are identified during the permitting process, they are evaluated for their importance. Those sites that are found significant and may be impacted by mining have those impacts mitigated. Mitigation covers a range from avoidance, the preferred measure, to large-scale excavation with the goal being to collect important information about past cultures ***(bottom left)****.*

Small family cemeteries are common on mine sites. To protect them, the Act requires that mining be kept at least 100 feet from cemeteries. On a mine in Wise County, Virginia, a cemetery was found in a wooded area located on a mountaintop removal mine site ***(below)****. Mining was completed leaving an unmined area surrounding the small group of head stones. As the site was reclaimed, the backfill was graded to provide a gentle slope that allows easy access from all sides of the cemetery* ***(bottom right)****.*

Protecting the remains of an ancient Indian dwelling beside a dry stream bed near Farmington, New Mexico ***(bottom far right)****, required careful design and construction of the access road to a mine and powerplant.*

This midwestern church in the middle of an active mining area remains as it did before mining ***(right)****. The mine operator left the rectory, church yard, nearby cemetery, and surrounding church property intact by mining around them. To the people of the congregation, the goodwill shown by the company far exceeds the value of the coal that was not mined.*

37

Roads

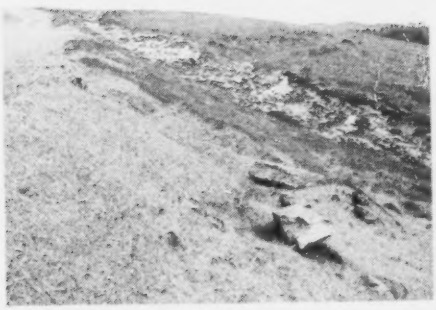
Haul roads to mines constitute a significant percentage of the land used for surface coal mining. These are usually well-engineered roads designed for heavy-equipment use in all types of weather. Precautions must be taken during their design and construction to ensure adequate drainage of surface water from the road surface and right-of-way, to minimize erosion and water drainage to the road base. Regulations describe the specific standards for locating, grading, surfacing, and maintaining mine roads and associated structures such as drainage ditches and culverts.

Parts of the mine road system that can be kept to serve the postmining land use can represent a significant benefit. If roads are not left in place for the postmining use, the area is reclaimed. Road reclamation entails regrading, topsoil replacement, and revegetation so that the former roads blend into adjacent reclaimed areas.

This haul road in Alabama has a raised berm. Disturbed areas were quickly mulched and reseeded to prevent erosion ***(below)****. Runoff from the road flows into a riprap-lined ditch with closely spaced check dams across the water flow. These dams slow the water and reduce its erosive power.*

Road surfaces must be maintained to ensure haulage of coal and passage of equipment. Spraying water on the road controls on-site dust, improves visibility, and prevents off-site fugitive dust ***(top right)****.*

This set of tire tracks through the vegetation is the otherwise invisible trace of a former Ohio mine haul road ***(bottom right)****. Where haul roads are not retained for permanent use, they must be reclaimed to the same standards as other disturbed areas of the mine site.*



Remining

As a result of pre-Act mining—when reclamation was the exception rather than the rule—millions of surface mined acres were left in a condition which adversely affects the environment. If the environmental impact of an abandoned mine site is extreme, or if the site constitutes a health and safety hazard, it is eligible for reclamation through the Abandoned Mine Lands program. Unfortunately, most sites are not eligible and there is doubt that there ever will be sufficient funds to provide for restoration of all abandoned sites. A partial solution to the problem has been remining, which entails the reopening of an abandoned mine by extending either the length or the width of the cut and incorporating reclamation of the abandoned mine lands into the active-mine reclamation process. Remining also may involve the elimination of shallow underground mine workings. Removal of abandoned underground mines, referred to as **daylighting**, has a large environmental benefit because a significant volume of acid mine drainage is generated by such abandoned underground workings.

Coal mining companies have voluntarily reclaimed many abandoned mine lands while mining adjacent properties. Potentially, many additional sites could be reclaimed through remining. The Office of Surface Mining Reclamation and Enforcement recognizes the present economic limitations and currently is advancing several initiatives encouraging industry to apply remining techniques and to extend the voluntary reclamation of abandoned coal mines.

Pre-Act abandoned mines, such as this one in Pennsylvania ***(above)****, are remined both to maximize coal recovery and to reclaim previously disturbed areas to an improved environmental condition* ***(below)****.*

Glossary

Access road See Haul road.

Acid- and toxic-forming materials Rock or coal layers containing significant amounts of pyrite or other minerals which, if exposed by coal mining, will cause acid or toxic drainage to form when acted upon by air and water.

Acid mine drainage Any water, having a pH less than 6.0, draining from coal mines. Water is often orange in color because of the presence of oxidized iron.

Approximate original contour. The surface configuration achieved by backfilling and grading the mined area so that the reclaimed land closely resembles the general surface configuration before mining and blends into and complements the drainage pattern of the surrounding terrain.

Area mining A surface mining method that is carried on in level to gently rolling topography on relatively large tracts of land. Active area mine pits may be several miles long.

Arid and semiarid regions Lands, generally west of the 100th meridian, where water use by native vegetation equals or exceeds that supplied by natural precipitation, and rainfall is insufficient to support agriculture. Annual precipitation is normally 20 inches or less.

Auger mining A mining method often used by surface mine operators when the overburden gets too thick for the coal to be mined economically. Large-diameter (usually 2-4 foot) horizontal holes are drilled as much as 300 feet into the vertical face of the coal bed by an auger. Like a bit used for boring holes in wood, coal augers consist of a cutting head with screwlike extensions. As the auger turns, the head breaks up the coal and the screw carries it back into a conveyor that loads it directly into a truck.

Backfilling The operation of refilling an excavation using material removed during the mining process.

Bench The level or flat working area at the base of the highwall that is excavated between the exposed coal seam and the original surface of the ground.

Bucket wheel excavator A continuous-digging machine using a rotating vertical wheel with buckets for large-scale stripping and excavating.

Contemporaneous reclamation Restoration of mined land as soon as practical after mining.

Contour mining A mining method commonly used in eastern mountainous topography where coal is removed in a narrow strip around the hillside. The extent of the cut into the hillside is determined by the depth of overburden at the highwall compared with the thickness of the coal seam.

Daylighting A term used to describe the surface mining procedure for exposing abandoned underground coal mine workings to remove all of the remaining coal underlying the surface. Daylighting is followed by land reclamation.

Dragline An excavating machine, usually used in large flat areas, that drags a huge bucket (holding up to 220 cubic yards of material) toward the machine for loading with spoil and then hoists it with a boom up to 350 feet long, allowing the machine to excavate wide benches by depositing the spoil hundreds of feet away from the highwall.

Grading The process of smoothing the disturbed areas of the mine site, after the coal is removed, to closely approximate the premining landscape.

Haul road Any road constructed, improved, maintained, or used by mine operators and located within the area of land affected by mining.

Head-of-hollow fill See Valley fill.

Highwall The cliff-like excavated face of exposed overburden and coal in a surface mine.

Hydroseeding Planting of seed mixed in a water medium. Water, mulch, lime, fertilizer, and seed are blended and sprayed onto regraded soil.

Impoundment Permanent pond frequently formed from a sedimentation pond.

Legumes A group of plants valuable for both food and forage and used in reclamation plantings due to their nitrogen-fixing characteristics. Commonly used reclamation legumes include clovers, alfalfa, lespedeza, and vetch.

Mountaintop removal mining A mining method commonly associated with Appalachia conditions where 100 percent of the overburden covering a coal seam is removed in order to get complete recovery of the coal. Excess spoil is hauled to a nearby valley and deposited in durable valley fills. The reclaimed mine site resembles a mesa or highland plateau.

Outcrop The natural surface exposure of a coalbed or other identifiable rock layer.

Overburden Rock material overlying the coal deposit, but excluding soil materials which are generally removed separately for use in reclamation.

Performance bond A financial guarantee posted by a mine operator to ensure faithful performance of the requirements of the Act and the completion of land reclamation. Bonds are returned to the operator upon successful completion of reclamation. If the operator fails to complete the required reclamation, the bond is forfeited and the money is used to reclaim the site.

Permit A document issued by the regulatory authority, giving approval to operate a surface coal mine under conditions set forth in the Act and the implementing regulations.

Permit area The area of land and water within the boundaries specified in the mining and reclamation permit. At a minimum, this includes all areas which will be directly affected by the surface coal mining operation during the term of the permit.

Preparation plant A facility at which coal is cleaned or processed before being shipped or used.

Prime farmland A special category of highly productive cropland that is recognized and described by the U.S. Department of Agriculture's Soil Conservation Service, and receives special protection under the Act.

Pyrite A yellowish mineral, iron disulfide (FeS_2), commonly found in coal beds and associated rocks, that results in acid drainage when in contact with air and water.

Regulatory authority The State agency, or OSMRE, which has responsibility for administering the Act in a given geographic area.

Riprap Large-size broken or crushed rock placed on earth dams and in drainage channels for protection against the erosive action of water.

Sedimentation pond An impoundment constructed on the mine site to remove suspended solids from surface water before it leaves the the permit area.

Spoil The overburden, not including the soil layers, that has been removed in surface mining to gain access to the coal seam.

Steep slope Areas with slopes greater than 20 degrees, commonly requiring special mining and reclamation techniques due to the difficulty of stabilizing reclaimed land and preventing erosion.

Stream diversion The temporary or permanent rerouting of a stream. Acceptable relocation involves the reconstruction of existing streambed features such as riffles, falls, and meanders.

Terrace A depression across the face of a steep hillside to slow the flow of surface water and minimize soil erosion.

Topsoil The dark, fertile uppermost part of the soil.

Valley fill A stable, designed disposal area for spoil not needed for reclamation, placed in the uppermost part of a valley. No significant area of natural drainage occurs above the fill.

Table I. Interim and permanent program permits issued, by mining type, 1977-86

	TYPE OF OPERATION*	ALABAMA	ALASKA	ARKANSAS	COLORADO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MARYLAND	MISSOURI	MONTANA	NEW MEXICO	NORTH DAKOTA	OHIO	OKLAHOMA	PENNSYLVANIA	TENNESSEE	TEXAS	UTAH	VIRGINIA	WASHINGTON	WEST VIRGINIA	WYOMING	CROW TRIBE	HOPI TRIBE	NAVAJO TRIBE	TOTAL
1978	SURFACE	378		16	3	21	131	3	19	355	1	20	14	4		5	175	60	339	168	2	1	22		212	5	1			1,957
	UNDERGROUND				6					120		5		1			20			4			273		154	1				584
	OTHER	82a				1				16							4	3					26		49					180
	TOTAL	460		16	9	22	131	3	19	491	1	25	14	5		5	199	63	339	172	2	1	321		414	6	1			2,721
1979	SURFACE	369		10	4	24	136	6	11	767	4	7	8	6	6	26	234	94	366	137	5		61		163	5	1			2,454
	UNDERGROUND				11	5				647				1	1					14		23	162		130					994
	OTHER	73				10				83								2					18		64					250
	TOTAL	442		10	15	39	136	6	11	1,497	4	7	8	9	7	26	234	96	366	151	5	23	241		357	5	1			3,698
1980	SURFACE	311		9	7	12	139	2	11	1,079		16	10	2	3	5	171	146	290	130	2		40		146	6	2		1	2,542
	UNDERGROUND				6	36		1		515									10	12		1	56		213					852
	OTHER	101				26		2		95		1								1			17		127					370
	TOTAL	412		9	15	74	139	5	11	1,889		19	10	2	3	5	171	146	300	143	2	1	113		486	6	2		1	3,764
1981	SURFACE	334		8	5	14	187	2	1	1,144	1		2	3	1	9	146	71	340	116	8		86		189	6				2,652
	UNDERGROUND				3	2				505									1	28			135		276					950
	OTHER	93		2		3				219										8	1		42		175					541
	TOTAL	427		10	8	19	187	2	1	1,868	1		2	3	1	9	146	71	341	150	9		242		640	6				4,143
1982	SURFACE	217		11	8	11	71			99		11	35	3	3	13	129	29	544	113	4		89		124	10		1	1	1,506
	UNDERGROUND				5	1		3		25		1								71		4	197		162	1				470
	OTHER	60				2				7										20			79		94					261
	TOTAL	277		11	13	14	71	3		131		12	35	3	3	13	129	29	544	204	4	4	344		380	11		1	1	2,237
1983	SURFACE	79	1	6	5	14	58	12		157	1	12	21	5		13	167	16	278	22	2		93	1	102	9				1,074
	UNDERGROUND	4			10	5	1	2		213										9			285		230					759
	OTHER	9				5	1	2		17		9					25			2	1		125		180					376
	TOTAL	92	1	6	15	24	60	16		387	1	21	21	5		13	192	16	278	33	3		503	1	512	9				2,209
1984	SURFACE	49		2	3	31	110	5		662		7	22	8	1	12	184	20	556	35	1		41		99	12	1		1	1,862
	UNDERGROUND	4			4	8	6	1		746							15		4	30		5	56		94					973
	OTHER	3				16	11	1		211		2					80	3	73	11		2	21		56					480
	TOTAL	56		2	7	55	127	7		1,619		9	22	8	1	12	279	23	633	76	1	7	118		249	12	1		1	3,325
1985	SURFACE	22		3	3	20	75	1		345		6	13	4	1	8	93	7	612	9			35	1	122	9				1,389
	UNDERGROUND	2			6	14	2	3		245					1		1	1	13	7		6	84		91	1				477
	OTHER	1			2	13	5			43							67		58	7	1		5		57					259
	TOTAL	25		3	11	47	82	4		633		6	13	4	2	8	161	8	683	23	1	6	124	1	270	10				2,215
1986	SURFACE	28		4		16	42	1		181		6	17	3	6	7	96	6	170	10	4			1	119	7			2	728
	UNDERGROUND	3				6	2	1		107							1		39	15		3			97					274
	OTHER	5				7	2			13							65		22	29					40					185
	TOTAL	36		4		29	46	2		301		6	17	3	6	7	164	6	231	54	4	3		1	256	7			2	1,185
TOTAL		2,227	1	71	93	323	981	45	41	8,616	7	105	142	42	23	101	1,675	458	3,715	1,006	31	45	2,006	3	3,564	72	5	1	5	25,407

* EXAMPLES OF OTHER OPERATIONS: ROADS AND PREPARATION PLANTS.

Table II. Acreage under permit, by mining type, 1977-86*

	TYPE OF OPERATION**	ALABAMA	ALASKA	ARKANSAS	COLORADO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MARYLAND	MISSOURI	MONTANA	NEW MEXICO	NORTH DAKOTA	OHIO	OKLAHOMA	PENNSYLVANIA	TENNESSEE	TEXAS	UTAH	VIRGINIA	WASHINGTON	WEST VIRGINIA	WYOMING	CROW TRIBE	HOPI TRIBE	NAVAJO TRIBE	TOTAL
1978	SURFACE	22,103		413	1,134	4,297	21,316	1,231	889	23,250	5	1,511	5,980	6,273		1,450	11,874	8,050		5,995	7,622	25	1,500		17,456	13,398	2,148			157,919
	UNDERGROUND				1,144					2,248				98			563			32			1,620		1,261	311				7,217
	OTHER	517				4				736							265						2,111		549					4,332
	TOTAL	22,620		413	2,278	4,301	21,316	1,231	889	26,284	5	1,511	5,980	6,371		1,450	12,702	8,050		6,027	7,622	25	5,231		19,306	13,709	2,148			169,469
1979	SURFACE	28,107		385	2,158	19,835	39,675	1,345	1,103	65,536	27	1,013	6,518	10,533	43,158	9,679	20,318	27,597		5,435	16,167		3,592		15,078	15,654	22			332,935
	UNDERGROUND				1,038	677	33			8,891				12	4,361					132		2,287	810		1,140					19,381
	OTHER	269				1,736				4,231													943		1,003					8,182
	TOTAL	28,376		385	3,196	22,248	39,708	1,345	1,103	78,658	27	1,013	6,518	10,544	47,519	9,679	20,318	27,597		5,567	16,167	2,287	5,346		17,221	15,654	22			360,499
1980	SURFACE	30,993		381	9,094	6,539	49,825	150	844	103,450		1,395	8,482	1,992	8,480	52	15,378	18,528		4,076	5,532		2,123		15,557	7,154	625		9,000	299,650
	UNDERGROUND				2,242	16,252		11		8,306										65		7	199		2,184					29,265
	OTHER	699				12,061		150		4,961		9								35			419		2,979					21,313
	TOTAL	31,692		381	11,336	34,852	49,825	311	844	116,717		1,404	8,482	1,992	8,480	52	15,378	18,528		4,176	5,532	7	2,741		20,720	7,154	625		9,000	350,228
1981	SURFACE	38,491		1,216	10,751	5,681	67,872	111	2,434	83,312	29	125	66	6,587	9,331	7,736	12,559	12,352		3,988	44,901		3,552		18,110	12,372				341,575
	UNDERGROUND				9,235	1,174				6,703										265			981		2,262					20,261
	OTHER	579		33		188			787	7,757										113	75		1,285		6,940					17,756
	TOTAL	39,070		1,249	19,986	7,043	67,872	111	3,220	97,772	29	125	66	6,587	9,331	7,736	12,559	12,352		4,366	44,976		5,818		27,312	12,372				379,952
1982	SURFACE	25,309		141	25,700	6,294	6,092	379	3,039	6,072		1,136	18,862	5,673	11,772	7,205	15,813	15,135		6,982	46,033		3,822		16,044	57,016		3,068	42,068	323,654
	UNDERGROUND				3,973	39				292										697		34	735		2,013					7,783
	OTHER	348				930			23	130										468			1,374		2,494					5,767
	TOTAL	25,657		141	29,673	7,263	6,092	379	3,062	6,494		1,136	18,862	5,673	11,772	7,205	15,813	15,135		8,147	46,033	34	5,931		20,551	57,016		3,068	42,068	337,205
1983	SURFACE	26,905	1,000	75	1,030	13,447	42,944	2,232	886	19,933	29,573	314	2,606	4,320		13,961	19,631	1,507		1,121	6,685		13,056	9	12,910	81,440				295,586
	UNDERGROUND	387			31,360	2,989	6	342		83,920				129			2,371			93			3,377		6,613	110				129,326
	OTHER	404				3,705	63	150	23	423		132								51	428		10,400		8,534					26,684
	TOTAL	27,696	1,000	75	32,390	20,141	43,013	2,724	909	104,276	29,573	446	2,606	4,450		13,961	22,002	1,507		1,265	7,113		26,833	9	28,057	81,550				451,596
1984	SURFACE	14,020		21	2,441	30,721	53,480	1,326	655	80,714		661	3,710	5,145	8,040	4,314	24,340	5,850	53,558	1,909	55		4,417		9,709	64,833	176		3,969	374,063
	UNDERGROUND	76			6,283	3,337	663	810		225,868							2,393		25	235		643	377		2,524					240,234
	OTHER	298				9,153	5,634	40		10,719		12					4,719		767	307		579	1,246		3,447					36,921
	TOTAL	14,394		21	10,724	43,211	59,777	2,176	655	317,301		673	3,710	5,145	8,040	4,314	31,452	5,850	54,350	2,451	55	1,222	6,040		15,680	64,833	176		3,969	656,218
1985	SURFACE	4,167		227	3,590	15,892	17,239	1,944		43,211		277	3,110	46	6,740	2,178	12,699	4,529	115,998	1,868			4,104	14,160	15,765	59,397				327,141
	UNDERGROUND	15			6,619	5,523		2,500		61,254					5,114		190	142	8	154		70	933		1,223	5,529				99,273
	OTHER	119			126	3,115	1,256			3,043							3,094		1,568	124	150		753		2,477					15,825
	TOTAL	4,301		227	10,335	24,530	18,495	4,444		107,508		277	3,110	46	11,854	2,178	15,983	4,671	117,574	2,146	150	70	5,790	14,160	19,464	64,926				432,239
1986	SURFACE	6,862		91		17,275	5,842	80	1,053	28,416		423	6,121	3,116	24,570	6,552	11,681	3,486	41,887	920	12,995			422	16,254	18,512			13,700	220,258
	UNDERGROUND	77				3,361	19	1,770		24,515							4		25	594		654			1,240					32,279
	OTHER	145				2,524	17		304	353							4,961		2,110	505					1,202					12,721
	TOTAL	7,084		91		23,180	5,878	1,850	1,357	53,884		423	6,121	3,116	24,570	6,552	16,646	3,486	44,022	2,019	12,995	654		422	19,696	18,512			13,700	265,257
TOTAL		200,890	1,000	2,983	119,918	186,769	311,976	14,571	12,040	908,894	29,634	7,007	55,455	43,923	121,566	53,128	162,853	97,176	215,946	36,164	140,643	4,296	63,729	14,591	187,008	335,724	2,971	3,068	68,737	3,402,662

* TOTAL ACREAGE MAY DIFFER FROM SUMMATION OF INDIVIDUAL ACREAGE DATA BECAUSE OF ROUNDING OF DATA.
** EXAMPLES OF OTHER OPERATIONS: ROADS AND PREPARATION PLANTS.

Table III. Acreage of reclamation bonds released, by bond type, 1977-86*

TYPE OF BOND RELEASE	ALABAMA	ALASKA	ARKANSAS	COLORADO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MARYLAND	MISSOURI	MONTANA	NEW MEXICO	NORTH DAKOTA	OHIO	OKLAHOMA	PENNSYLVANIA	TENNESSEE	TEXAS	UTAH	VIRGINIA	WASHINGTON	WEST VIRGINIA	WYOMING	CROW TRIBE	HOPI TRIBE	NAVAJO TRIBE	TOTAL
1978																													
INTERIM																													
INITIAL	3,293							89			939					8,569								7,292					20,182
FINAL	2,418				2,193			152			1,364					12,208								8,590					26,925
PERMANENT																													
PHASE I																													
PHASE II																													
PHASE III																													
TOTAL	5,711				2,193			241			2,302					20,777								15,882					47,106
1979																													
INTERIM																													
INITIAL	27,264							608			1,182	55				6,190	2,930							9,423					49,652
FINAL	26,988				1,040			163			982					8,227	1,121							16,963					55,484
PERMANENT																													
PHASE I																													
PHASE II																													
PHASE III																													
TOTAL	54,252				1,040			771			2,164	55				16,417	4,051							26,386					105,135
1980																													
INTERIM																													
INITIAL	32,753							75			955	258				12,173	2,815							9,928					58,957
FINAL	25,966				2,065			271			825	22				5,208	1,711			6,304		14,304		11,285					67,960
PERMANENT																													
PHASE I																													
PHASE II																													
PHASE III																													
TOTAL	58,719				2,065			345			1,780	280				17,381	4,525			6,304		14,304		21,213					126,917
1981																													
INTERIM																													
INITIAL	29,899							479			917	962			403	12,520	3,289		15					9,176					57,660
FINAL	29,344				1,799		100	2,775			1,156	62				11,689	3,792					6,590		14,718					72,025
PERMANENT																													
PHASE I			39																										39
PHASE II																													
PHASE III			22																										22
TOTAL	59,243		61		1,799		100	3,254			2,073	1,024			403	24,209	7,081		15			6,590		23,894					129,746

TYPE OF BOND RELEASE	ALABAMA	ALASKA	ARKANSAS	COLORADO	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MARYLAND	MISSOURI	MONTANA	NEW MEXICO	NORTH DAKOTA	OHIO	OKLAHOMA	PENNSYLVANIA	TENNESSEE	TEXAS	UTAH	VIRGINIA	WASHINGTON	WEST VIRGINIA	WYOMING	CROW TRIBE	HOPI TRIBE	NAVAJO TRIBE	TOTAL
1982																													
INTERIM																													
INITIAL	33,770							13	12,784		978	1,513				15,335	2,876		2,052					5,227					74,547
FINAL	22,809				1,152		60	95	31,929		856	85			41	10,098	4,697		180	38,646		6,985		5,761					123,173
PERMANENT																													
PHASE I			148					56		18									180										402
PHASE II			60							16									11										89
PHASE III			13							14							113												140
TOTAL	56,579		221		1,152		60	164	44,713	50	1,633	1,598			41	25,432	7,686		2,403	38,646		6,985		10,988					198,351
1983																													
INTERIM																													
INITIAL	13,956							143	16,739		689	114			1,048	10,768	2,385	21,012	6,119					12,093					85,066
FINAL	9,855				2,602			299	35,205		524	201				8,550	3,333	3,970	498			6,717		13,174					84,919
PERMANENT																													
PHASE I			15					154				188				629	182		797										1,965
PHASE II																	192												192
PHASE III			20										57				197		113										387
TOTAL	23,811		35		2,602			596	51,944		1,213	503	57		1,048	19,947	6,290	24,982	7,527			6,717		25,267					172,526
1984																													
INTERIM																													
INITIAL	9,484				2,390		39	62	13,255		79	542			703	5,652	377		205					5,691					38,448
FINAL	7,820				2,862		250		118,903		491	282				6,063	1,130		111			12,170		14,249					162,370
PERMANENT																													
PHASE I			60				250	183	273		915	175				886	257	15,902	233	410				859					20,415
PHASE II							476									70		12,432		255									13,233
PHASE III			2															4,644	7					168					4,821
TOTAL	17,304		62		5,272		1,015	245	130,431		1,485	1,005			703	12,703	1,724	32,978	556	665		12,170		20,967					238,285
1985																													
INTERIM																													
INITIAL	5,031				1,031	4,242	12		15,863			618			291	2,842	484							2,353					32,766
FINAL	12,769				321	4,060	20		68,932		485	544				9,585	321		1,765	33		6,449		9,067					114,331
PERMANENT																													
PHASE I	812		5				68		2,374		853	282			834	2,430	267	22,766	424		8	93		4,111					35,329
PHASE II			23				48		74		429				834	305		14,857						33					16,403
PHASE III	348		2					93		5	64						5	2,316						56					2,888
TOTAL	18,960		30		1,352	8,301	148	93	87,243	5	1,810	1,444			1,959	15,162	1,078	39,741	2,189	33	8	5,541		15,620					201,718
1986																													
INTERIM																													
INITIAL	1,710			25	2,106	2,171		63	8,170			948			258	3,104	246						9	1,251					20,080
FINAL	18,592				1,007	1,134	34	231	20,253		114	509		24,217	19	8,287	1,133		1,646					2,804					79,979
PERMANENT																													
PHASE I	5,928		85	471	38	3,444	255	35	4,438			616			771	6,795	2,123	11,839	1,170		41			4,749		372			43,170
PHASE II	339							93			670				992	1,034	138	10,222	112					264	2,694				16,557
PHASE III	357		21				404			4	134				10		58	2,649		428				4,751					8,826
TOTAL	29,926		106	496	3,151	6,749	693	422	32,861	4	917	2,073		24,217	2,050	19,219	3,696	24,710	2,928	428	41		9	13,829	2,694	372			168,562
TOTAL	321,505		515	496	20,626	15,050	2,016	6,120	347,192	59	15,378	7,962	57	24,217	6,205	171,246	36,133	122,411	15,618	46,076	49	53,307	9	174,046	2,694	372			1,389,379

* TOTAL ACREAGE MAY DIFFER FROM SUMMATION OF INDIVIDUAL ACREAGE DATA BECAUSE OF ROUNDING OF DATA

REFERENCES

U.S. Department of the Interior. Surface Mining and Our Environment. Washington, D.C. 1967. [Out of print.]

U.S. Department of Energy, Energy Information Administration. Coal Data: A Reference. Washington DC 20585. 1986.

U.S. 95th Congress. Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87). [Copies containing all revisions through May 1, 1986, are available from the Office of Surface Mining Reclamation and Enforcement, Washington, DC 20240.]

Association of Abandoned Mine Land Programs. Abandoned Mine Land Reclamation: 10 Years of Progress. Springfield, IL 62701. 1987.

U.S. Department of the Interior. Small Surface Coal Mine Operators' Handbook. Office of Surface Mining Reclamation and Enforcement, Washington, D.C. 20240. 1980.

Surface mining of coal is a temporary use of the land. Three years ago this area was being actively mined by the Sequatchie Valley Coal Co. in East Tennessee. Today the land has been reclaimed and is being used for hay production.

Helena Coal Co. mine operator Rusty Justice has said with proper planning mining can be economical and reclamation can be effectively achieved. On his mine in Eastern Kentucky, spoil is handled once and reclamation is an integral part of the mining operation. Here recently mined land has been immediately reclaimed, leaving a hillside that closely resembles the original topography.

Now that reclamation has become common practice, it is often difficult to recognize where mining has occurred. In Laurel County, Kentucky, the small site to the left of the barn was mined and reclaimed without permanent impact on the landscape.